T.S. Designs, Inc. Energy Audit

Prepared by:
Stuart Pendergraph
(336) 578-7935
December 12, 2010

Introduction:

The energy audit is the first step in understanding how your business uses energy and where utility payments are being allocated. This energy audit is designed to identify the energy wasters within your business, identify potential areas of improvement, and recommend solutions to help make your business more energy efficient. An energy efficient business is healthier, more comfortable and costs less to operate. A total visual inspection of the facilities will be performed during the energy audit to pinpoint problem areas. Thorough assessments often use equipment such as blower doors, which measure the extent of leaks in the building envelope, and infrared cameras, which reveal hard-to-detect areas of air infiltration and missing insulation.

A complete electrical inventory will be performed during this energy audit in order to access the number of devices that are consuming electrical energy and the overall cost for operating each device. The audit will also include a full assessment of the last three years of utility bills (gas, water and electricity). The utility bills will be put into a series of spreadsheets, and then graphed out for analysis by the energy auditor. This data will allow the auditor to focus on the most energy intensive areas/devices and make recommendations for improvements.

Building Characteristics: *T.S. Designs, Incorporated*

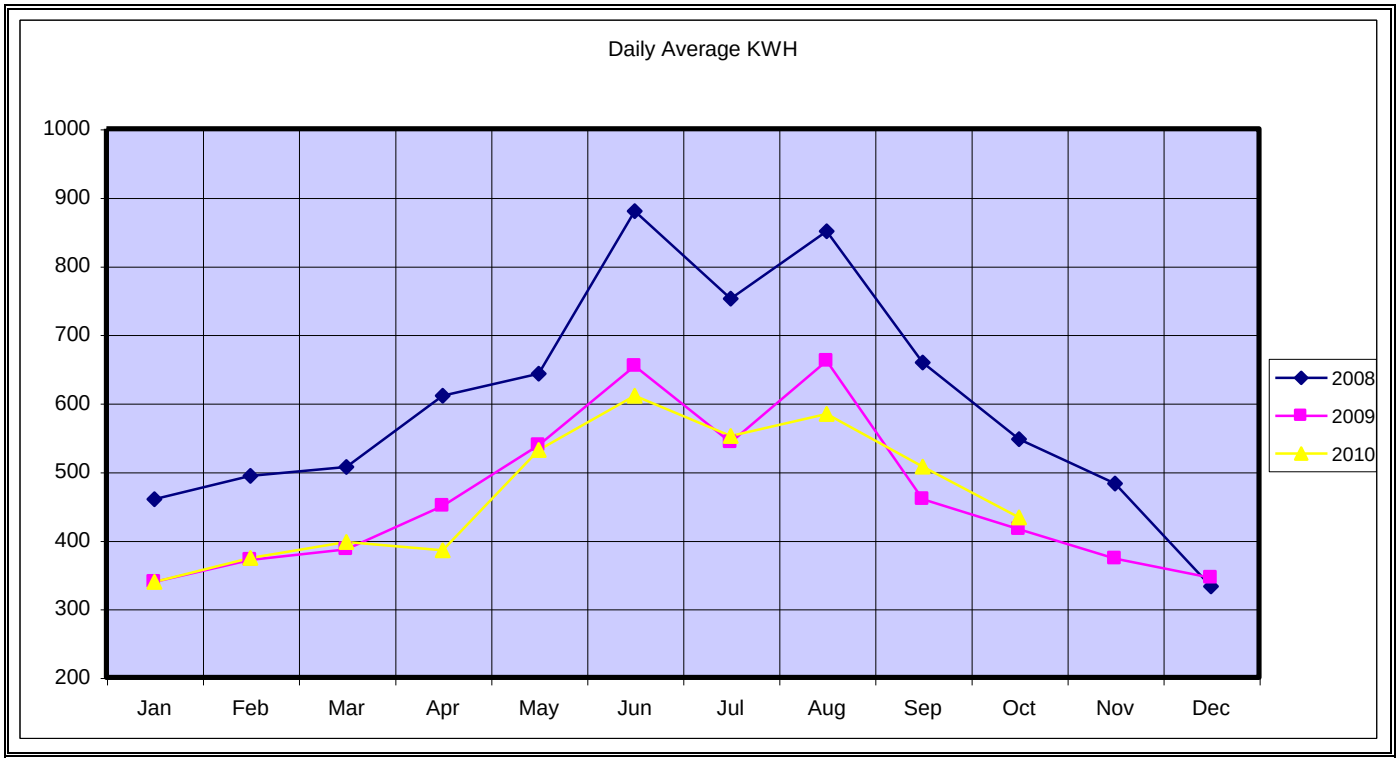
Type of business	Number of floors	Total area (sq.ft.)	Production area (sq.ft.)	Office area (sq.ft.)	Construction type
Manufacturing	1	20,000	16,000	4,000	Metal clad with interior insulation

Heating systems	# of heating units	Cooling systems	# of cooling units	Water heating systems	Notes:
Packaged NG units	7	Electric Heat pump	8	Electric (3) Gas (1)	**Solar/wind system installed: Solar (10.7Kw) Wind (1Kw)**

Utility Billing Assessment: (T.S. Designs)

A three-year assessment of the electricity, water and gas bills was performed to determine where energy resources and money are being allocated. The information collected from the bills was entered into a spreadsheet and the data was used to construct graphs that allowed us to see if any unusual patterns developed over the three-year period.

- **Electric bills:** The electric bills shared a similar pattern over the past three-years. It was expected that the electricity usage would spike during the summer months because the cooling systems uses heat pumps that consume electricity. Sealing up penetrations in the building envelope will help lower the load placed upon the A/C systems, therefore reducing the summer electrical spike shown on the graph. The spread sheet calculates and displays the real cost per Kwh and daily average Kwh. The slow down in production orders is the main reason why the electrical demand has been dropping since 2008.



T.S.Designs, 2053 Willow Springs Lane Electricity 2008

billing	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Average
service period	12/27-01/29	01/29-02/28	02/28-03/28	03/28-04/28	04/28-05/28	05/28-06/26	06/26-07/28	07/28-08/28	08/28-09/26	09/26-10/28	10/28-11/25	11/25-12/26	
Days	32	29	30	30	30	29	32	30	29	32	28	31	
KWH actual demand	85	74	87	102	115	124	122	126	135	121	89	74	
KWH billing demand	127	127	127	127	127	127	127	126	135	135	135	135	
KWH usage	14,720	14,320	15,200	18,320	19,280	25,520	24,080	25,520	19,120	17,520	13,520	10,320	18,120
KWH usage cost	$ 1,204	$ 1,162	$ 1,207	$ 1,347	$ 1,388	$ 1,657	$ 1,581	$ 1,636	$ 1,459	$ 1,395	$ 1,184	$ 1,010	
KWH outdoor lighting	304	304	304	304	304	304	304	304	304	304	304	304	
Outdoor lighting cost	$ 24.28	$ 24.28	$ 24.28	$ 24.28	$ 24.28	$ 24.28	$ 24.28	$ 24.28	$ 25.19	$ 25.34	$ 25.34	$ 25.34	
NC Greenpower	$ 100.00	$ 100.00	$ 100.00	$ 100.00	$ 100.00	$ 100.00	$ 100.00	$ 100.00	$ 100.00	$ 100.00	$ 100.00	$ 100.00	
sales tax	$ 22.12	$ 21.35	$ 22.17	$ 24.69	$ 25.43	$ 30.27	$ 23.49	$ 23.24	$ 20.78	$ 19.90	$ 16.93	$ 14.50	
Total cost	$ 1,350	$ 1,308	$ 1,354	$ 1,496	$ 1,538	$ 1,811	$ 1,729	$ 1,783	$ 1,605	$ 1,541	$ 1,326	$ 1,150	$1,499
Daily average KWH	460	494	507	611	643	880	753	851	659	548	483	333	602
Cost per KWH	$ 0.082	$ 0.081	$ 0.079	$ 0.074	$ 0.072	$ 0.065	$ 0.066	$ 0.064	$ 0.076	$ 0.080	$ 0.087	$ 0.097	$0.077
Real Cost per KWH	$ 0.090	$ 0.089	$ 0.087	$ 0.080	$ 0.079	$ 0.070	$ 0.071	$ 0.069	$ 0.083	$ 0.086	$ 0.096	$ 0.108	$0.084

T.S.Designs, 2053 Willow Springs Lane Electricity 2009

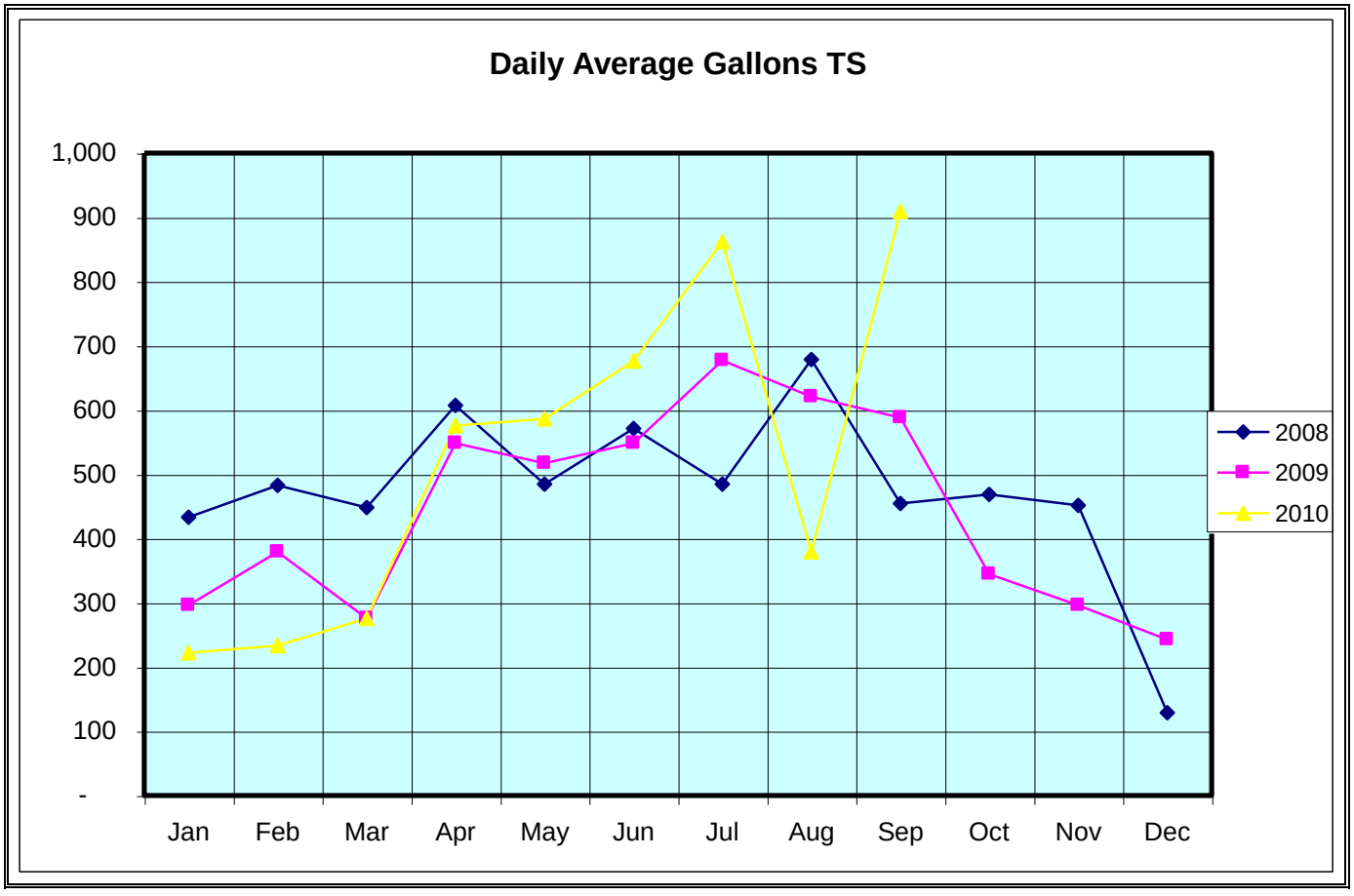
billing	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Average
service period	12/26-01/28	01/28-02/25	02/25-03/27	03/27-04/28	04/28-05/28	05/28-06/26	06/26-07/28	07/28-08/27	08/27-09/28	09/28-10/28	10/28-11/24	11/24-12/29	
Days	33	28	30	32	30	29	32	30	32	30	27	35	
KWH actual demand	74	69	70	98	98	119	109	110	106	78	65	66	
KWH billing demand	135	100	100	100	100	119	109	110	106	100	100	100	
KWH usage	11,200	10,400	11,600	14,400	16,160	18,960	17,360	19,840	14,720	12,480	10,080	12,080	14,107
KWH usage cost	$ 1,010	$ 878	$ 942	$ 1,075	$ 1,154	$ 1,356	$ 1,263	$ 1,384	$ 1,184	$ 1,056	$ 916	$ 1,033	
KWH outdoor lighting	304	304	304	304	304	304	304	304	304	304	304	304	
Outdoor lighting cost	$ 25.34	$ 25.34	$ 25.34	$ 25.34	$ 25.34	$ 25.36	$ 25.22	$ 25.20	$ 26.24	$ 26.44	$ 26.44	$ 26.44	
NC Greenpower	$ 100.00	$ 100.00	$ 100.00	$ 100.00	$ 100.00	$ 100.00	$ 100.00	$ 100.00	$ 100.00	$ 100.00	$ 100.00	$ 100.00	
sales tax	$ 14.51	$ 12.65	$ 13.54	$ 15.40	$ 16.50	$ 19.34	$ 11.50	$ 11.28	$ 9.67	$ 8.66	$ 7.53	$ 8.47	
Total cost	$ 1,150	$ 1,016	$ 1,081	$ 1,215	$ 1,295	$ 1,501	$ 1,399	$ 1,521	$ 1,319	$ 1,191	$ 1,050	$ 1,168	$1,242
Daily average KWH	339	371	387	450	539	654	543	661	460	416	373	345	462
Cost per KWH	$ 0.090	$ 0.084	$ 0.081	$ 0.075	$ 0.072	$ 0.072	$ 0.073	$ 0.070	$ 0.081	$ 0.085	$ 0.091	$ 0.086	$0.080
Real Cost per KWH	$ 0.100	$ 0.095	$ 0.091	$ 0.083	$ 0.079	$ 0.078	$ 0.079	$ 0.076	$ 0.088	$ 0.093	$ 0.101	$ 0.094	$0.088

T.S.Designs, 2053 Willow Springs Lane Electricity 2010

billing	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Average
service period	12/29-01/27	01/27-02/24	02/24-03/26	03/26-04/28	04/28-05/26	05/26-06/28	06/28-07/28	07/28-08/27	08/27-09/28	09/28-10/27			
Days	29	28	30	33	28	33	30	30	32	29			
KWH actual demand	68	67	69	86	103	110	109	110	121	101			
KWH billing demand	100	100	100	100	103	110	109	110	121	101			
KWH usage	9,840	10,480	11,920	12,720	14,880	20,160	16,560	17,520	16,240	12,560			14,288
KWH usage cost	$ 1,006	$ 1,057	$ 1,145	$ 1,192	$ 1,316	$ 1,619	$ 1,448	$ 1,504	$ 1,415	$ 1,126			
KWH outdoor lighting	304	304	304	304	304	304	304	304	304	304			
Outdoor lighting cost	$ 26.10	$ 26.07	$ 26.07	$ 26.07	$ 26.07	$ 26.07	$ 26.35	$ 26.39	$ 24.83	$ 24.48			
NC Greenpower	$ 100.00	$ 100.00	$ 100.00	$ 100.00	$ 100.00	$ 100.00	$ 100.00	$ 100.00	$ 100.00	$ 100.00			
renewable energy rider	$ 7.67	$ 8.56	$ 8.56	$ 8.56	$ 8.56	$ 8.56	$ 8.56	$ 8.56	$ 12.48	$ 13.21			
sales tax	$ 8.32	$ 8.73	$ 9.44	$ 9.81	$ 10.80	$ 13.23	$ 1.19						
Total cost	$ 1,148	$ 1,201	$ 1,289	$ 1,336	$ 1,462	$ 1,767	$ 1,584	$ 1,639	$ 1,552	$ 1,263			$1,424
Daily average KWH	339	374	397	385	531	611	552	584	508	433			472
Cost per KWH	$ 0.102	$ 0.100	$ 0.096	$ 0.094	$ 0.088	$ 0.080	$ 0.087	$ 0.086	$ 0.087	$ 0.089			$0.091
Real Cost per KWH	$ 0.113	$ 0.111	$ 0.105	$ 0.103	$ 0.096	$ 0.086	$ 0.094	$ 0.092	$ 0.094	$ 0.098			$0.099

Utility Billing Assessment: (T.S. Designs)

- **Water bills:** T.S. Designs has three water bills each month. One bill is for the Willow Springs facility and the other two bills are for the dye house facility. the water bill at TS presented a pattern discrepancy between 2010 and the previous two years. The 2008 and 2009 patterns closely resemble each other but something happened in 2010 that caused a couple of huge spikes in water usage during the summer and early fall periods. It was determined that the spike in demand was caused by a garden being planted on the premises, along with a few trees. The garden provides food for all of the employees. Methods for reducing the water consumption at the Willow Spring facility will be addressed in the "water" section of this report.



T.S.Designs, 2053 Willow Springs Lane Water 2008

billing	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Average
service period	12/28-1/28	1/28-2/27	2/27-3/26	3/26-4/24	4/24-5/27	5/27-6/25	6/25-7/28	7/28-8/26	8/26-9/29	9/29-10/31	10/31-12/01	12/1-12/31	
gallons	13,000	14,000	13,000	17,000	16,000	16,000	16,000	19,000	15,000	15,000	14,000	4,000	14,333
Days	30	29	29	28	33	28	33	28	33	32	31	31	
Water cost	$ 68.90	$ 73.80	$ 68.90	$ 88.50	$ 83.60	$ 83.60	$ 83.60	$ 98.30	$ 78.70	$ 78.70	$ 73.80	$ 21.68	
Sewer cost	$ 85.02	$ 91.56	$ 85.02	$ 111.18	$ 104.64	$ 104.64	$ 108.80	$ 129.20	$ 102.00	$ 102.00	$ 95.20	$ 27.20	
Total Cost	$ 153.92	$ 165.36	$ 153.92	$ 199.68	$ 188.24	$ 188.24	$ 192.40	$ 227.50	$ 180.70	$ 180.70	$ 169.00	$ 48.88	$ 170.71
avg.gallons/day	433	483	448	607	485	571	485	679	455	469	452	129	475
cost per gallon	$ 0.0118	$ 0.0118	$ 0.0118	$ 0.0117	$ 0.0118	$ 0.0118	$ 0.0120	$ 0.0120	$ 0.0120	$ 0.0120	$ 0.0121	$ 0.0122	$0.012

T.S.Designs, 2053 Willow Springs Lane Water 2009

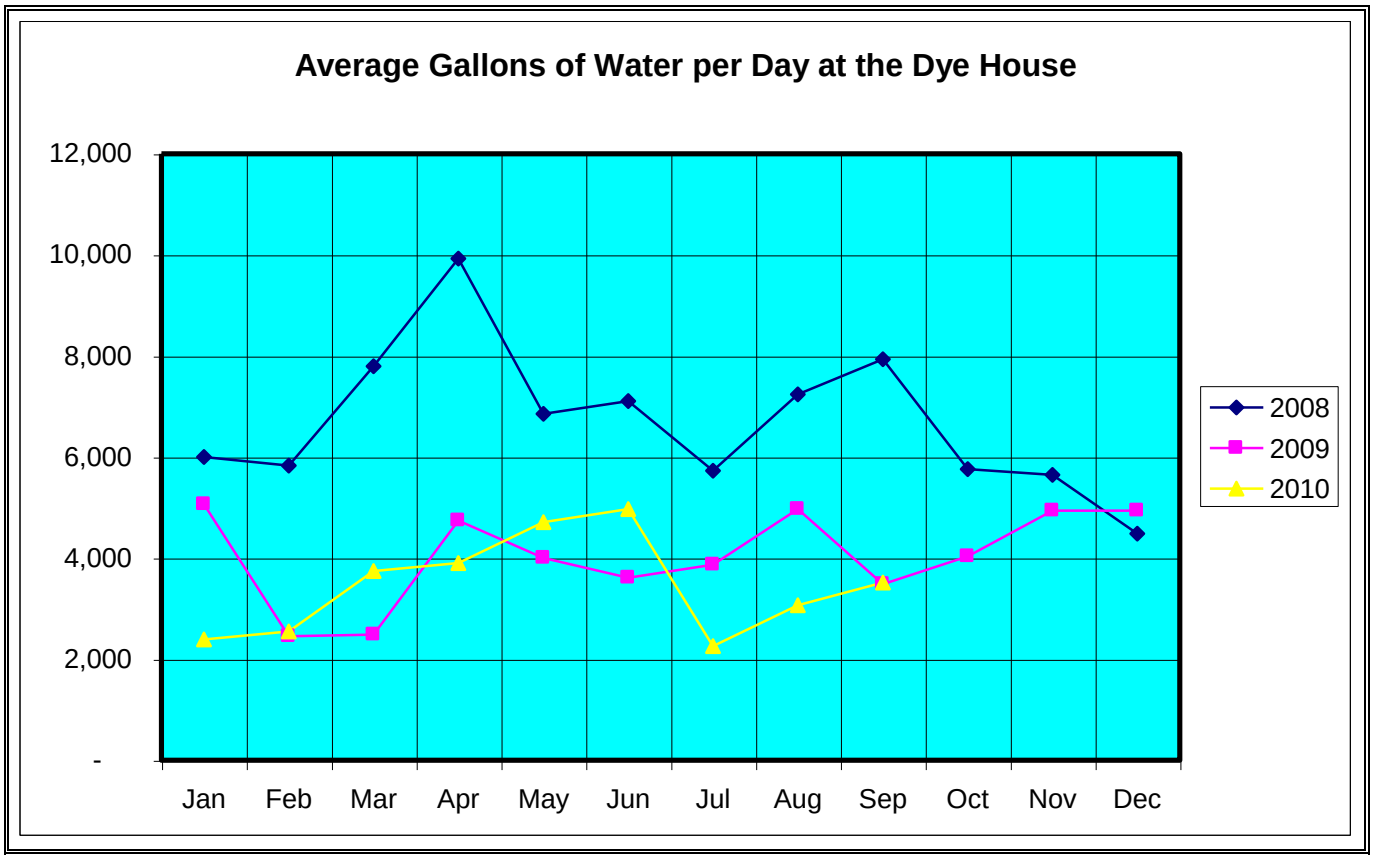
billing	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Average
service period	12/31-1/27	1/27-2/25	2/25-3/26	3/26-4/27	4/27-5/26	5/26-6/26	6/26-7/27	7/27-8/25	8/25-9/28	9/28-10/27	10/27-11/23	11/23-12/29	
gallons	8,000	11,000	8,000	17,000	15,000	17,000	21,000	18,000	20,000	10,000	8,000	8,000	13,417
Days	27	29	29	31	29	31	31	29	34	29	27	33	
Water cost	$ 43.36	$ 59.10	$ 34.00	$ 88.50	$ 78.70	$ 88.50	$ 113.54	$ 98.12	$ 108.40	$ 57.00	$ 45.60	$ 45.60	
Sewer cost	$ 54.40	$ 74.80	$ 27.10	$ 115.60	$ 102.00	$ 115.60	$ 149.94	$ 128.52	$ 142.80	$ 71.40	$ 57.12	$ 57.12	
Total Cost	$ 97.76	$ 133.90	$ 61.10	$ 204.10	$ 180.70	$ 204.10	$ 263.48	$ 226.64	$ 251.20	$ 128.40	$ 102.72	$ 102.72	$ 163.07
avg.gallons/day	296	379	276	548	517	548	677	621	588	345	296	242	445
cost per gallon	$ 0.0122	$ 0.0122	$ 0.0076	$ 0.0120	$ 0.0120	$ 0.0120	$ 0.0125	$ 0.0126	$ 0.0126	$ 0.0128	$ 0.0128	$ 0.0128	$0.012

T.S.Designs, 2053 Willow Springs Lane Water 2010

billing	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Average
service period	12/29-1/25	1/25-2/24	2/24-3/25	3/25-4/27	4/27-5/26	5/25-6/28	6/28-7/27	7/27-8/25	8/25-9/27				
gallons	6,000	7,000	8,000	19,000	17,000	23,000	25,000	11,000	30,000				16,222
Days	27	30	29	33	29	34	29	29	33				
Water cost	$ 34.20	$ 39.90	$ 45.60	$ 103.26	$ 92.98	$ 123.82	$ 134.10	$ 62.14	$ 159.80				
Sewer cost	$ 42.84	$ 49.98	$ 57.12	$ 135.66	$ 121.38	$ 164.22	$ 178.50	$ 78.54	$ 214.20				
debt serv.lake							$ 15.63	$ 7.03	$ 18.70				
dam repair							$ 6.25	$ 2.81	$ 7.48				
Total Cost	$ 77.04	$ 89.88	$ 102.72	$ 238.92	$ 214.36	$ 288.04	$ 334.48	$ 150.52	$ 400.18				$ 210.68
avg.gallons/day	222	233	276	576	586	676	862	379	909				524
cost per gallon	$ 0.0128	$ 0.0128	$ 0.0128	$ 0.0126	$ 0.0126	$ 0.0125	$ 0.0134	$ 0.0137	$ 0.0133				$0.013

- **<u>Water bills:</u> (Dye house)**

  The dye house facility is where the fabric is colored and processed after printing. The dye house is at a separate location and it operates only occasionally. Water is used extensively during the dyeing process and the water usage at the dye house is directly proportional to the business conditions. Further study is required to make any type of recommendations for reducing water usage at the dye house facility.



T.S.Designs Water 2008 (DYE HOUSE) 413 Tucker Street 032 & 002

billing	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Average
service period	12/27-1/28	1/28-2/27	2/27-3/26	3/26-4/24	4/24-5/28	5/28-6/27	6/25-7/28	7/29-8/28	8/28-9/29	9/29-10/28	10/28-11/26	11/26-12/29	
gallons	186,000	169,000	226,000	278,000	233,000	206,000	189,000	210,000	246,000	167,000	158,000	139,000	200,583
Days	31	29	29	28	34	29	33	29	31	29	28	31	
Water cost	$ 452.50	$ 415.89	$ 544.06	$ 664.46	$ 560.93	$ 498.70	$ 462.09	$ 510.18	$ 588.86	$ 412.67	$ 392.30	$ 345.75	
Sewer cost	$ 608.22	$ 552.63	$ 739.02	$ 909.06	$ 761.91	$ 673.62	$ 642.60	$ 714.00	$ 836.40	$ 567.80	$ 537.20	$ 472.60	
Storm Water	$ 4.00	$ 4.00	$ 4.00	$ 4.00	$ 4.00	$ 4.00	$ 4.00	$ 4.00	$ 4.00	$ 4.00	$ 4.00	$ 4.00	
Total Cost	$ 1,064.72	$ 983.17	$ 1,296.81	$ 1,577.52	$ 1,326.84	$ 1,176.32	$ 1,108.69	$ 1,228.18	$ 1,429.26	$ 998.76	$ 933.50	$ 822.35	$ 1,162.18
avg.gallons/day	6,000	5,828	7,793	9,929	6,853	7,103	5,727	7,241	7,935	5,759	5,643	4,484	6,691
cost per gallon	$ 0.0057	$ 0.0058	$ 0.0057	$ 0.0057	$ 0.0057	$ 0.0057	$ 0.0059	$ 0.0058	$ 0.0058	$ 0.0060	$ 0.0059	$ 0.0059	$ 0.0058

T.S.Designs Water 2009 (DYE HOUSE) 413 Tucker Street 032 & 002

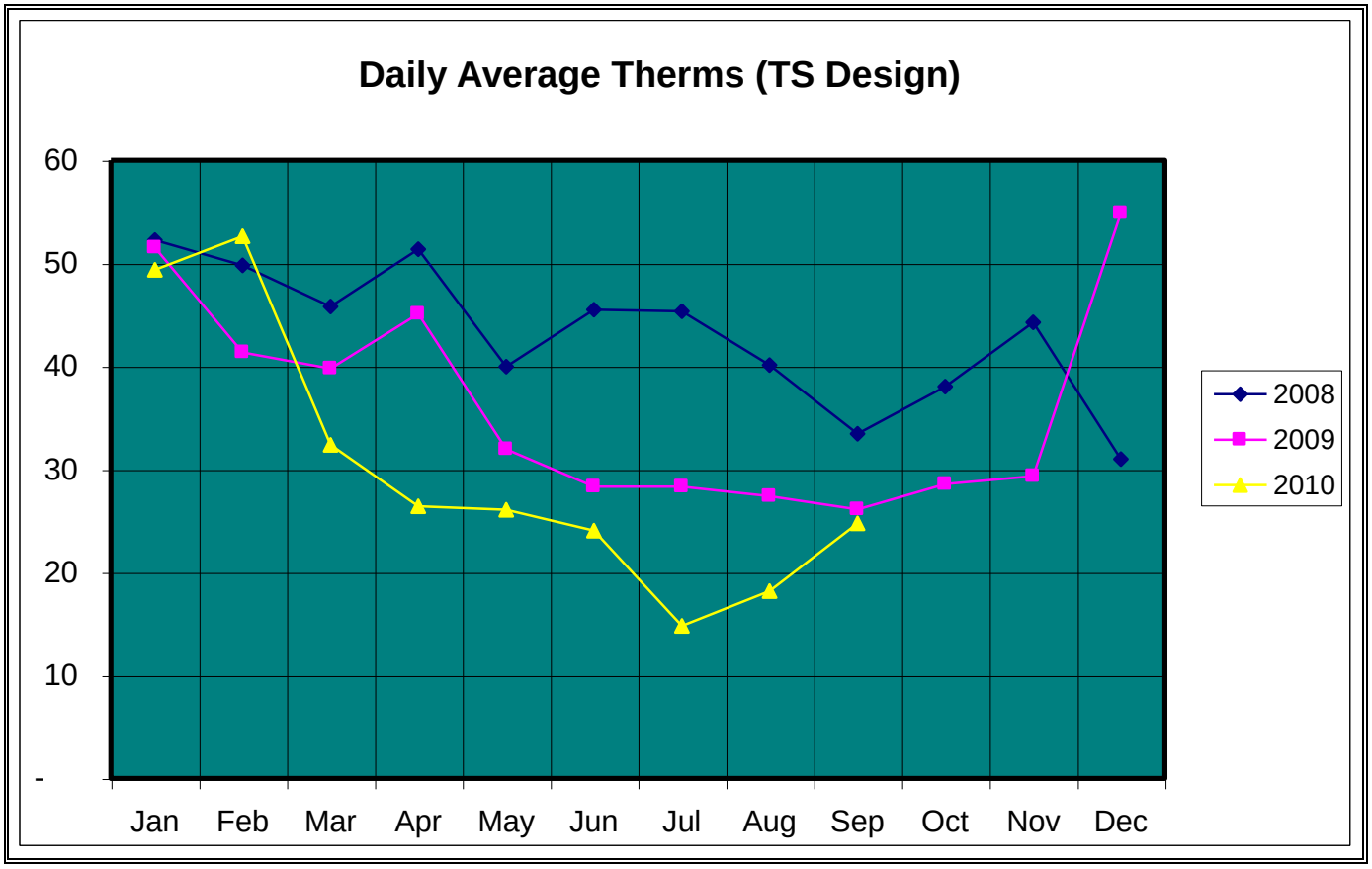
billing	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Average
service period	12/29-1/28	1/28-2/26	2/26-3/27	3/27-4/27	4/27-5/26	5/26-6/25	6/25-7/27	7/27-8/25	8/25-9/28	9/28-10/27	10/27-11/25	11/25-12/28	
gallons	157,000	76,000	77,000	147,000	124,000	112,000	120,000	154,000	108,000	125,000	153,000	153,000	125,500
Days	31	31	31	31	31	31	31	31	31	31	31	31	
Water cost	$ 389.85	$ 191.40	$ 229.25	$ 365.35	$ 309.00	$ 279.60	$ 314.00	$ 401.38	$ 283.16	$ 326.85	$ 398.81	$ 398.81	
Sewer cost	$ 533.80	$ 258.40	$ 226.40	$ 499.80	$ 421.60	$ 380.80	$ 428.40	$ 549.78	$ 385.56	$ 446.25	$ 546.21	$ 546.21	
Storm Water	$ 4.00	$ 4.00	$ 4.00	$ 4.00	$ 4.00	$ 4.00	$ 4.00	$ 4.00	$ 4.00	$ 4.00	$ 4.00	$ 4.00	
Total Cost	$ 927.65	$ 453.80	$ 459.65	$ 869.15	$ 734.60	$ 664.40	$ 753.04	$ 955.16	$ 672.72	$ 783.83	$ 949.02	$ 958.51	$ 765.13
avg.gallons/day	5,065	2,452	2,484	4,742	4,000	3,613	3,871	4,968	3,484	4,032	4,935	4,935	4,048
cost per gallon	$ 0.0059	$ 0.0060	$ 0.0060	$ 0.0059	$ 0.0059	$ 0.0059	$ 0.0063	$ 0.0062	$ 0.0062	$ 0.0063	$ 0.0062	$ 0.0063	$ 0.0061

T.S.Designs Water 2010 (DYE HOUSE) 413 Tucker Street 032 & 002

billing	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Average
service period	12/28-1/25	1/25-2/24	2/24-3/25	3/25-4/27	4/27-5/26	5/26-6/28	6/28-7/27	7/27-8/25	8/25-9/27				
gallons	74,000	79,000	116,000	121,000	146,000	154,000	70,000	95,000	109,000				107,111
Days	31	31	31	31	31	31	31	31	31				
Water cost	$ 195.78	$ 208.63	$ 303.72	$ 316.57	$ 380.82	$ 401.38	$ 185.50	$ 249.75	$ 285.73				
Sewer cost	$ 264.18	$ 282.03	$ 414.12	$ 431.97	$ 521.22	$ 549.78	$ 249.90	$ 339.15	$ 389.13				
Storm Water	$ 4.00	$ 4.00	$ 4.00	$ 4.00	$ 4.00	$ 4.00	$ 4.00	$ 4.00	$ 4.00				
Jordan lake	$ -	$ -	$ -	$ -	$ -	$ -	$ 21.77	$ 29.45	$ 33.74				
dam repairs	$ -	$ -	$ -	$ -	$ -	$ -	$ 8.71	$ 11.78	$ 13.50				
Total Cost	$ 473.45	$ 499.30	$ 726.79	$ 759.76	$ 913.57	$ 964.22	$ 469.88	$ 634.13	$ 726.10				$ 685.24
avg.gallons/day	2,387	2,548	3,742	3,903	4,710	4,968	2,258	3,065	3,516				3,455
cost per gallon	$ 0.0064	$ 0.0063	$ 0.0063	$ 0.0063	$ 0.0063	$ 0.0063	$ 0.0067	$ 0.0067	$ 0.0067				$ 0.0064

Utility Billing Assessment: (T.S. Designs)

- **Natural gas bills:** The gas bills at TS over the past three years (2008-10) have been erratic due to fluctuating production orders. Gas is used to heat the building and domestic water but a majority of the gas is consumed by the dryers that dry the ink on the printed T-shirts. The amount of gas used for heating the building will be reduced when the building envelope is bettered sealed against air infiltration. The spike in gas usage back in November 2009 had occurred at both facilities due to colder than normal temperatures. Methods for reducing the gas consumption at the Willow Spring facility (T.S. Design) will be addressed in the "gas" section of this report.



T.S.Designs, 2053 Willow Springs Lane Gas 2008

billing	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Average
service period	01/08-02/07	02/07-03/07	03/07-04/04	04/04-05/08	05/08-06/09	06/09-07/09	07/09-08/07	08/07-09/05	09/05-10/08	10/08-11/08	11/08-12/08	12/08-1/09	
Therms	1,568	1,494	1,283	1,747	1,279	1,365	1,315	1,164	1,104	1,179	1,328	992	1,318
Days	30	30	28	34	32	30	29	29	33	31	30	32	
Avg Temp	42	47	53	60					64	56	43	48	
Amount	$2,044	$1,949	$1,584	$2,325	$1,800	$2,170	$2,091	$1,854	$1,685	$1,659	$1,888	$1,388	$1,870
Avg. daily therms	52	50	46	51	40	46	45	40	33	38	44	31	43
cost per therm	$1.30	$1.30	$1.23	$1.33	$1.41	$1.59	$1.59	$1.59	$1.53	$1.41	$1.42	$1.40	$1.43

T.S.Designs, 2053 Willow Springs Lane Gas 2009

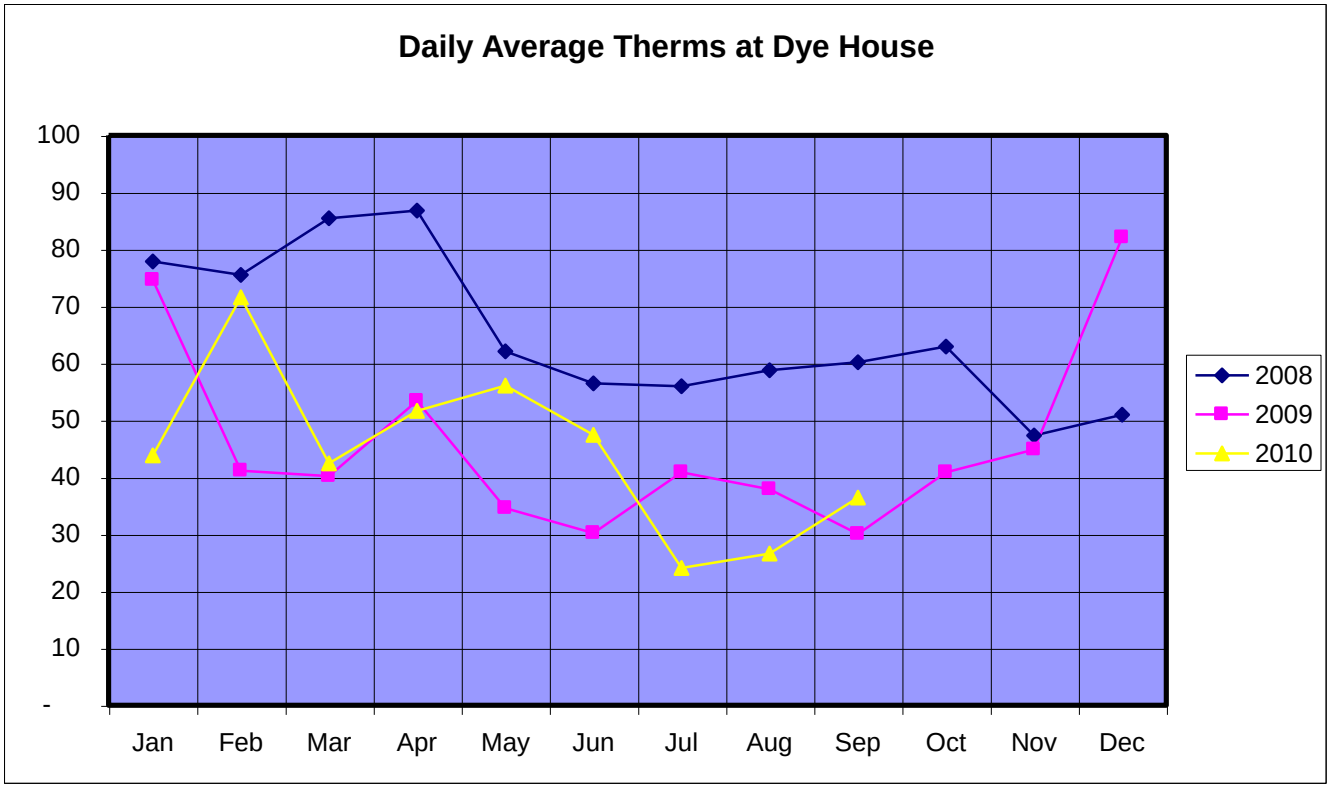
billing	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Average
service period	01/09-02/07	02/07-03/10	03/10-04/07	04/07-05/07	05/07-06/08	06/08-07/09	07/09-08/07	08/07-09/08	09/08-10/07	10/07-11/09	11/09-12/09	12/09-01/10	
Therms	1,494	1,282	1,114	1,353	1,022	878	850	877	757	943	880	1,646	1,091
Days	29	31	28	30	32	31	30	32	29	33	30	30	
Avg Temp	38	47	52	61					64	57	50	36	
Amount	$1,923	$1,536	$1,302	$1,561	$1,185	$1,022	$983	$1,021	$884	$1,124	$1,033	$1,912	$ 1,291
Avg. daily therms	52	41	40	45	32	28	28	27	26	29	29	55	36
cost per therm	$1.29	$1.20	$1.17	$1.15	$1.16	$1.16	$1.16	$1.16	$1.17	$1.19	$1.17	$1.16	$1.18

T.S.Designs, 2053 Willow Springs Lane Gas 2010

billing	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Average
service period	01/08-02/09	02/09-03/08	03/08-04/07	04/07-05/08	05/08-06/08	06/08-07/07	07/07-08/06	08/06-09/08	09/08-10/06				
Therms	1,580	1,421	971	819	809	698	444	600	693				893
Days	32	27	30	31	31	29	30	33	28				
Avg Temp	39	39	58	62									
Amount	$1,836	$1,620	$1,022	$846	$836	$725	$470	$627	$704				$965
Avg. daily therms	49	53	32	26	26	24	15	18	25				30
cost per therm	$1.16	$1.14	$1.05	$1.03	$1.03	$1.04	$1.06	$1.04	$1.02				$1.06

- **<u>Natural gas bills:</u> (Dye House)**

  The dye house doesn't operate on a daily basis and the consumption of gas is directly related to the amount of production. Gas is used to heat up a large boiler that supplies hot water for domestic and production needs. As mentioned previously, the November and December spike back in 2009 was due to a severe cold streak. Further study is required to make any type of recommendations for reducing gas usage at the dye house facility.



T.S.Designs Gas 2008 (DYE HOUSE)

413 Tucker St.

billing	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Average
service period	01/08-02/07	02/07-03/07	03/07-04/04	04/04-05/08	05/08-06/09	06/09-07/09	07/09-08/06	08/06-09/05	09/05-10/08	10/08-11/07	11/07-12/08	12/08-1/09	
Therms	2,259	2,265	2,393	2,951	1,988	1,694	1,567	1,764	1,987	1,889	1,467	1,632	1,988
Days	29	30	28	34	32	30	28	30	33	30	31	32	
Avg Temp	42	47	53	60					64	57	43	32	
Amount	$2,930	$2,938	$2,924	$3,888	$2,785	$2,687	$2,487	$2,797	$3,012	$2,642	$2,083	$2,268	$2,787
Avg.daily therms	78	76	85	87	62	56	56	59	60	63	47	51	65
cost per therm	$1.30	$1.30	$1.22	$1.32	$1.40	$1.59	$1.59	$1.59	$1.52	$1.40	$1.42	$1.39	$1.42

T.S.Designs Gas 2009 (DYE HOUSE)

413 Tucker St.

billing	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Average
service period	01/09-02/07	02/07-03/10	03/10-04/07	04/07-05/07	05/09-06/08	06/08-07/09	07/09-08/07	08/07-09/08	09/0810/08	10/08-11/07	11/09-12/09	12/09-01/08	
Therms	2,238	1,276	1,125	1,708	1,038	937	1,144	1,212	901	1,226	1,391	2,463	1,388
Days	30	31	28	32	30	31	28	32	30	30	31	30	
Avg Temp	38	47	52	62					64	56	51	36	
Amount	$2,868	$1,529	$1,315	$1,964	$1,203	$1,089	$1,324	$1,401	$1,048	$1,456	$1,619	$2,849	$1,639
Avg.daily therms	75	41	40	53	35	30	41	38	30	41	45	82	46
cost per therm	$1.28	$1.20	$1.17	$1.15	$1.16	$1.16	$1.16	$1.16	$1.16	$1.19	$1.16	$1.16	$1.18

T.S.Designs Gas 2010 (DYE HOUSE)

413 Tucker St.

billing	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Average
service period	01/08-02/09	02/09-03/08	03/08-04/07	04/07-05/08	05/08-06/08	06/07-07/08	07/08-08/06	08/06-09/08	09/08-10/06				
Therms	1,404	1,933	1,273	1,602	1,682	1,471	698	878	1,021				1,329
Days	32	27	30	31	30	31	29	33	28				
Avg Temp	39	39	58	62					64				
Amount	$1,634	$2,194	$1,332	$1,632	$1,712	$1,501	$725	$905	$1,026				$1,407
Avg.daily therms	44	72	42	52	56	47	24	27	36				44
cost per therm	$1.16	$1.14	$1.05	$1.02	$1.02	$1.02	$1.04	$1.03	$1.00				$1.05

Building Envelope: (general information)

The "Building Envelope" is the area that separates conditioned space from unconditioned space or the outdoors. This includes walls, windows, doors, roofs, and floor surfaces. The envelope must balance requirements for ventilation while providing thermal and moisture protection appropriate to the climatic conditions of the site. Envelope design is a major factor in determining the amount of energy a building will use in its operation.

The building envelope is checked by using two methods: First, a visual inspection of the home or business is performed to see if there is any gaps within the envelope that could cause air leakage into the interior of the facility. Air leaks can reduce the effectiveness of your insulation by lowering the R-value. Secondly, a blower door is used to depressurize the structure to seek out the less obvious air leaks that may exist around your electrical outlets, recessed lighting fixtures, windows and doors. All air leaks within the envelope should be sealed with caulk or spray foam insulation. Most structures use fiberglass insulation as a thermal barrier to prevent heat flow but all homes need to have a good air barrier as well. Without an effective, continuous air-barrier system, conditioned air tends to escape through the building envelope, and the heating, ventilation and air-conditioning (HVAC) system has to work harder to keep the indoor environment comfortable. Air barriers also can increase both the longevity and durability of the building envelope. Air barriers are any material that effectively stops the flow of air through a structure. It can be OSB (oriented stranded board), sheet rock, rigid foam board, plastic wraps, etc.

Building Envelope: (T.S. Designs)

The envelope at T.S. Designs consists of a corrugated metal outer shell with a thin insulated inner membrane and a slightly sloped flat metal roof. The floor inside is made of concrete and the building has steel I-beams for structural support. The front part of the building contains office spaces, while the rest of the building is used for production and manufacturing purposes. The front offices are enclosed rooms constructed out of sheetrock with drop ceilings, while the manufacturing area is similar to a warehouse with high ceilings. The energy audit has identified numerous problems with the envelope of the building.

Findings for building envelope:

1.) A large diameter hole through the wall was discovered in the top corner of the main office.
2.) The bathroom near the main office is missing a ceiling tile.
3.) There was a hole discovered through the wall in the small conference room.
4.) Cracks were discovered along the edges of the windows in the main office, break area and small conference room.
5.) Front office area has temperature imbalances: center offices warmer than outer offices and hallways.
6.) Broken ceiling tile found in copier room.
7.) Gaps exist around ceiling tile and light tube near central bathrooms.
8.) Several ceiling tiles in the big conference room are in poor condition.
9.) The computer room has ceiling tiles damaged by condensation from water pipe above and pieces of other tiles missing.
10.) Screen cutting room has some damaged ceiling tiles.
11.) Screen department has several tiles that are falling down.
12.) The wall that separates the offices and production areas has numerous penetrations that allows air communication between the two separate areas.
13.) The gas vent pipe for the dryer and water heater has inadequate sealing and insulation.
14.) Employee entrance door has damaged weather stripping and does not seal well.
15.) The hole for refrigerant lines through outer wall near employee entrance is too large.
16.) Louvers above rollup doors in shipping has a large gap on the left side.
17.) Storage trailer entrance has large gaps that exist between the trailer and the building.
18.) The louvers near receiving shows some damage and cannot close fully.

Findings for building envelope: (cont.)

19.) Metal fresh air intake for A/C unit near shipping is not sealed off to the outside.
20.) Holes were found in a metal beam located near the ceiling in the maintenance area.
21.) Door in the maintenance area not sealing properly when closed.
22.) The insulation above the maintenance door is not been installed properly and it does not have a sufficient air barrier.
23.) All air jet and the ray paul dryers have vent stacks that penetrate the roof and visible light was peering around the flashing and no insulation was surrounding the stacks.
24.) QC area has a large opening in the roof that was sealed up improperly.
25.) Large exhaust fan located in the inspection area has louvers that don't seal properly.
26.) Small exhaust/intake fans located in the ink storage area are open to the outside with no proper way to close them off during hot or cold weather.
27.) Ink lab has several holes that penetrate the outer envelope.
28.) There are two holes through the outer wall up on the top deck that is leaking air.
29.) The ductwork on the two gas packs serving the office space has several holes in them that are allowing air to escape.
30.) Supply duct serving the ink lab has a large gap between the duct and the wall.
31.) Due to the sunlight exposure, the A/C refrigerant lines outside of the ink department has degraded significantly and the lines are exposed in some spots.

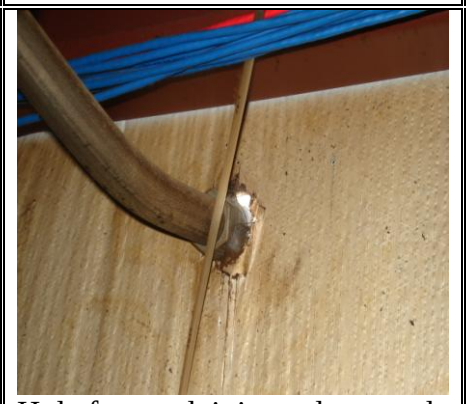
Recommendations for building envelope:

- There are numerous ceiling tiles throughout the building that are either missing or are damaged. These tiles need to be replaced and installed correctly in order to form a proper air barrier. The spaces above the drop ceiling do not need to become part of the conditioned air space. *Refer to the findings section for specific problems and locations*


Recommendations for building envelope: (cont.)

- There were numerous penetrations discovered throughout the building envelope along with missing or improperly installed insulation. All rips or tears in the insulation must be taped up. Any missing insulation needs to be replaced, while misplaced insulation needs to be corrected. Any insulation that is exposed needs to be sealed to form a proper air barrier and prevent lowering the R-value of the insulation. To prevent airflow, seal all penetrations with foam or caulk. *Refer to the findings section for specific problems and locations.*

EXAMPLES:

<table>
<tr>
<td> 
Hole penetrating outer envelope on the top deck needs sealing to prevent air exchanges.</td>
<td> 
Several penetrations through wall that separates office and production areas needs sealing.</td>
<td> 
Holes for A/C lines have been foamed before but leakage still occurring.</td>
</tr>
<tr>
<td> 
Insulation in maintenance shop needs proper placement and a better air barrier.</td>
<td> 
Hole for conduit is too large and needs spray foam.</td>
<td> 
Insulation in the maintenance area needs to have a proper air barrier.</td>
</tr>
</table>

Recommendations for building envelope: **(cont.)**

- The Front office area has temperature imbalances: center offices warmer than outer offices/hallways. *Solution:* Use a duct jumper to bridge between the center offices and the outer rooms. A permanent solution would be to contact an HVAC contractor and have them look at balancing the system to prevent hot and cold spots.

- The wall that separates the offices and production areas has numerous penetrations that allows air communication between the two separate areas. *Solution:* Repair the sheetrock by patching up the larger holes, while the smaller holes can be sealed up using foam backing, spray foam or caulk. The warm air from production floor could be used to heat the offices on cold days but a fan would have to be installed near the ceiling where the warm air accumulates and it needs to be placed on a thermostat. The thermostat will turn on the fan when the ceiling temperature rises above 80 degrees. The heated air could be pumped over to the front offices during cold days. A manual override can prevent the fan from running when not needed.

- The gas vent pipe for the dryer and water heater has inadequate sealing and insulation. *Solution:* Use fireproof caulk and insulation to seal around vent stacks.

- The Employee entrance door has damaged weather stripping and does not seal well. *Solution:* Replace the weather stripping and check the strike plate to be sure it is not damaged.

- Storage trailer entrance has large gaps that exist between the trailer and the building. *Solution:* The gaps are so large that it would be difficult to seal it properly, so a door or an insulated curtain needs to be installed in order to prevent air from entering the building.

- Holes were found in a metal beam located near the ceiling in the maintenance area. *Solution:* Use spray foam to seal up these holes and prevent air leaks. The metal beam also needs some type of insulation added to prevent thermal bridging from occurring.

- A louver above rollup door in shipping has a large gap on the left side. *Solution:* Use foam packing material to seal up any large gaps and the apply caulk. Any insulation that could be applied would be helpful.

Recommendations for building envelope: (cont.)

- There are two air louvers in the building that are not sealing or closing properly, which allow air to move freely. These leaks cause the HVAC systems to work harder. *Solution:* Repair the damaged louvers so that they may fully close and replace any weather-stripping that is not sealing well.

- Metal fresh air intake for A/C unit near shipping is not sealed off to the outside. *Solution:* Repair and insulate the metal plenum to prevent drafts.

- Door leading outside in the maintenance area not sealing properly when closed. *Solution:* Check strike plate for damage and replace weather stripping.

- All air dryers have vent stacks that penetrate the roof and visible light was noticed around the flashing. Also, no insulation was found surrounding the vent stacks near the ceiling. *Solution:* The openings surrounding the vent stacks need to be sealed up with a fireproof caulk, while insulation needs to be wrapped around the stacks near the ceiling.

- Inspection area has a large opening in the roof that was capped and sealed improperly. *Solution:* The opening needs to be sealed with caulk and insulated or the opening could be converted into a skylight to add light to a dark corner of the building.

- Small exhaust/intake fans located in the ink storage area are open to the outside with no proper way to close them off during hot or cold weather. *Solution:* Remove the two exhaust fans and seal up the holes with plywood, then place insulation over the the plywood and tape up any seams.

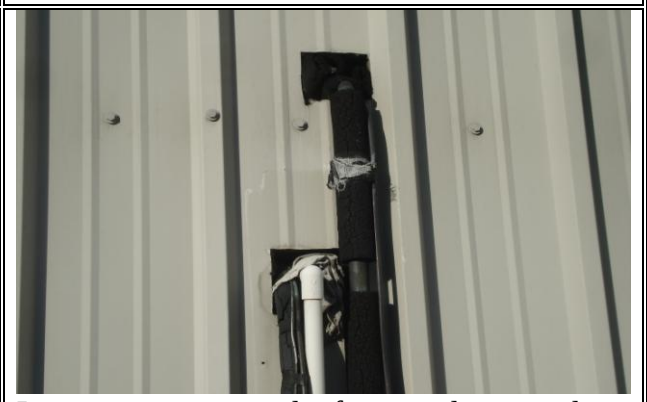
Recommendations for building envelope: (cont.)

- Due to the sunlight exposure, the A/C refrigerant lines outside of the ink department has degraded significantly and the lines are exposed in some spots.

- The ductwork on the two gas packs serving the office spaces has several holes in them that are allowing air to escape. *Solution:* Seal up the holes with spray foam.

- Supply duct serving the ink lab has a large gap between the duct and the outer wall. *Solution:* Take foam backing and stuff it into the large cracks between the duct and outer wall.

EXAMPLES:

<table>
<tr>
<td> 
A/C refrigerant lines outside of ink department needs new insulation.</td>
<td> 
Large gap around supply duct for ink lab needs to be sealed with foam backing.</td>
</tr>
<tr>
<td> 
Holes through duct around conduit needs sealing with foam.</td>
<td> 
Large opening around refrigerant lines needs spray foam.</td>
</tr>
</table>

Electrical: (T.S. Designs)

The electrical section of this audit will begin with the standard listing of findings, followed by recommendations. Also, a full electrical inventory was performed in order to discover the most energy intensive devices within the building and the associated cost of operating each device. The electrical inventory list is divided into three different sections (lighting, plug-in and hard wired devices). The inventory list contains pertinent data/information about cost and usage that can be put into a spreadsheet for analysis.

Findings for electrical:

1.) The neutron batteries are always plugged into the wall and "charging". The charger unit draws 1.0 amp of continuous current, even if the batteries are fully charged.
2.) There are a couple of fluorescent light fixtures within the maintenance area that are presently not being used.
3.) The fluorescent light fixture up on the mezzanine is mounted in a spot where shelving blocks a majority of the useable light.
4.) One of the fluorescent light fixtures in the bio-shed needs new ballast to work.
5.) The fluorescent light fixtures over the filing cabinets in payroll are not positioned correctly.
6.) The hallway fluorescent light fixture located between the art department and big conference room is more light than necessary for such a small hallway.
7.) The screen sanding room has an 8-foot, 2 bulb florescent light that is always on.
8.) Another 8-foot, 2-bulb fluorescent light fixture is always turned on in shipping area.
9.) No motion control devices found on any of the lights or exhaust fans in all of the bathrooms within the building.
10.) There were numerous lights within the building that have > 50-foot candles of light intensity and that may be too much light for those areas.
11.) The lights at the back of the dryers stay on for long periods of time without anyone around.
12.) The A/C supply ducts near the floor scales in shipping and the one behind ray paul dryer are pinched, which restricts airflow and lowers efficiency.
13.) No labels on computers that remind users to turn them off when they leave work.
14.) No plug-in timers are being used to control electrical appliances. (Copiers, computers, etc.)
15.) Fan for A/C wall unit in computer room always on, even in the winter.
16.) Space heaters are located under many desks throughout the building.
17.) Ice machine in break area is too large for the number of employees and the ice machine draws 5.0 amps of current when making ice.

Findings for electrical: (cont.)

18.) All dryers stay on too long during the start up and cooling down cycles, which waste both gas and electricity.
19.) The A/C units on the south side of the building is not shaded from the summer sun, which causes the compressor to run longer.
20.) The refrigerant lines on the south side Rheem A/C unit have deteriorated.
21.) The air compressors storage tank cannot be shut off completely and isolated.
22.) Heat from the gas fired dryers are generating lots of heat within the building causing the A/C units to run longer.

Recommendations for electrical:

- The two neutron batteries that are left on the chargers all the time needs to be placed on a plug in timer that shuts them off during the night. If each charger is drawing 1.0 amp of current, then 2.0 A are continuously being consumed.

  Calculation: I (current/amps) x V (volts) = P (power/watts)

  (I) 2.0A x (V) 120 = 240 Watts or 0.24Kw

  So,

  0.24Kw x 24 hours = 5.76Kwh/day

  Rate = $0.10/Kwh

  $0.10/Kwh x 5.76Kwh = $0.58

It cost $0.58/day, $4.06/week or $211.12/year for the batteries to stay on the charger all of the time. If a timer could shut these batteries off at nights (12hours), then you could save $105.56/year. A timer cost only $12.00 and your payback period would be:

Calculation: Simple pay back = cost of device / annual savings
= $12.00 / $105.56 = 0.113 years or 41 days.

Recommendations for electrical: (cont.)

- The two fluorescent lights in the maintenance area that are not being used need to be removed or repaired.
- The fluorescent fixture that is above the shelves up on the mezzanine is positioned incorrectly and most of the light is being block by the top shelf. The fixture needs to be moved over a couple of feet.
- The fluorescent light fixtures over the filing cabinets in payroll are not positioned correctly and most of the light is shining on the top of the cabinet. Only 20 foot-candles of light is reaching the filing cabinet drawers. Move fixture over 2 feet.
- Change out ballast on the fluorescent light fixture located in the bio-shed. It is a T12 8 foot fluorescent fixture. Convert it to a T8.
- The hallway between the art department and the big conference room has a 4-foot fluorescent fixture with two bulbs working and two bulbs removed. It is a short hallway and the fixture is producing 38-foot candles of light intensity 3 feet off the floor. It would be recommended to replace the old fixture with a new 360-degree motion controlled circular fluorescent light fixture. The new fixture will use approximately half the electricity of the old fixture. The old fixture uses 68 watts of power when turned on and the electrical inventory spreadsheet calculated that this was costing $0.34/week to operate. This comes out to be $17.68/year. The new fixture will cost about $28.00 and it will slash the consumption of electricity in half, which means a savings of $8.84/year. The pay back period is not very impressive but the business host allows tours and classes to be held at T.S. Designs and this fixture could be used as a demonstration model of how to use new technology to save energy.

Calculation: **Simple pay back = cost of device / annual savings**
= $28.00 / $8.84 = 3.16 years.

- There are two fixtures in the building that are on all of the time. One fixture is located in the shipping area, while the other light fixture is in the screen sanding room. The lights are on due to the fact that the business owner does not like to come into a dark windowless building when he arrives to work in the morning. These two lights are the most expensive ones to operate within the entire building. Both light fixtures are 8-foot T8 type fluorescents. The spreadsheet shows that these two lights are each costing $1.98/week to operate. Between the two lights it cost $205.92 annually to keep these lights on all the time. The simplest solution for the screen sanding room light fixture is to install a switch so that employees can turn the light off at the end of the shift. Add a LED style light fixture to the room that has a photo eye that turns it on only when the main light is switched off. Replace shipping light with a lower watt LED.

Recommendations for electrical: (cont.)

- No motion control devices found on any of the lights or exhaust fans in all of the bathrooms within the building. Installing motion control light switches in the bathroom or some type of timing device on exhaust fans can prevent energy from being wasted by employees that forget to turn them off when finished.
- There were numerous lights within the building that have > 50-foot candles of light intensity and that may be too much light for those areas. Evaluate each area that shows up on the spreadsheet as having light intensity that is > 50 foot candles. If the area can operate efficiently with less light intensity, then consider installing a smaller watt fixture in order to save energy/money.
- The lights at the back of the dryers stay on for long periods of time without anyone around. This situation was noticed on many occasions and installing a motion-controlled device for each group of lights can greatly reduce your electricity consumption. For instance, there are four 8-foot T8 or T12 two bulb fluorescent fixtures that are rated at 60 watts each. Your total wattage comes out to be 480 watts of lighting that is behind every dryer. A motion control device with a built in timing module can eliminate 30 to 50% of the wasted energy by turning off the lights located behind the dryers when nobody is around. The spreadsheets show that each fixture is costing $0.57/week to operate. There are a total of 12 fixtures behind the three dryers and that calculates out to be $6.84/week to operate these lights. If you can cut that expense by 30%, then your weekly operating cost would drop to $4.79/week. That $2.05 weekly savings comes out to be approximately $98.40/year. If the total cost for buying and installing these timed motion sensors turn out to be a couple of hundred dollars then it would pay for itself in a less than two years.
- There were several supply ducts for the A/C units that were restricted or pinched and this reduces airflow, which causes the A/C unit to run for longer periods. Adjust the ducts so that air can flow freely.
- Timers should be used on all electrical plug in appliances that are frequently used and rarely switched off at the end of the day. A study was conducted on the zerox printer located in the copier room. A kilowatt meter was used on the printer to determine the exact electrical usage over a two-day period. It was determined that the printer was consuming 2.15Kwh/day.

Calculation: 2.15Kwh/day x $0.10/Kwh = $0.215/day (operating cost)

A timer cost $12.00 and could reduce the “on” time by 50%, which cuts the operating cost in half. The payback period was calculated to be 3.3 months for every timer used.

Recommendations for electrical: (cont.)

- The computer room has a separate wall mounted air conditioner that is used to assure that the room temperature doesn't exceed 75 degrees Fahrenheit. There is also a supply register in the room that supplies conditioned air from the central A/C unit. The wall unit should not be plugged in during the winter months due to the fact that it should never get too warm inside of this closed off room. Make sure to shut off the supply register that serves this room so the warm air from the central unit doesn't make the computer room too warm. A kilowatt meter was used on the wall unit to determine the amount of power that was being consumed by the fan only. The fan alone was using 100 watts of power, even when the unit was not in the cooling mode.

  Calculation: 100 Watts (continuous) x 24 hours = 2,400 Watt/hours a day

  RATE = $0.10/Kwh, so 2.4Kw x $0.10 = $0.24 (daily operating cost)

  If you operate this fan during the three coldest months of the year, it will cost approximately $21.60 just to circulate the air.

- There are seven space heaters under employees' desk throughout the building. Each one of these units consumes 1,500 watts of power when it's on the highest setting. If each employee turns their personal heaters on high, then they are consuming 10,500 watts of power! It wouldn't be necessary to have these heaters if the office A/C system was balanced and functioning properly. First, try using duct jumpers to balance the system and if that doesn't work call a HVAC company for a system evaluation.
- The ice machine located in the break area is the most expensive and power hungry plug-in device listed on the spreadsheet. It cost $14.40/week to operate and a smaller unit could cut the power consumption by as much as 50%. The company would save $748.80/ year if the ice machine were totally eliminated.
- All dryers stay on too long during the start up and cooling down cycles. The dryers need to have some type of light or buzzer that notifies the operators that the dryer has reached the set temperature. Further study is recommended to determine the amount of gas and electricity that is wasted.
- The insulation for the refrigerant lines on both the trane and rheem A/C units has deteriorated and needs replacing. Both these units are located on the south side and some shading would prevent sun exposure, which makes the unit work more efficiently.

Recommendations for electrical: (cont.)

- The air storage tank for the compressed air system has only one ball valve shutoff and needs another one to isolate the tank from the rest of the system. The billing demand would be less if the storage tank were shutoff and isolated at the end of each shift. The air in the tank leaks out slowly during the night and this causes both compressors (lead/lag) to come on when first started. The air leaks are nearly impossible to totally eliminate but try to fix the most obvious ones. Each compressor consumes over 15,000 watts of power while compressing air and the power company charges the consumer more when their billing demand spikes. Further study will be required to accurately describe the energy savings.
- Heats escaping from the end of the gas-fired dryers are loading the A/C system during the warmer months. The doors are often left open for long periods in order to get more ventilation. This causes the efficiency of the A/C system to drop significantly. There are exhaust fans/louvers already installed within the building that were designed to help eliminate some of this hot air but they are not functioning correctly due to a bad pressure switch. Replace the bad pressure switch or have it re-wired with some other type of automatic control.

ELECTRICAL INVENTORY: *(introduction)* Additional Information was gathered upon the request of the business host. The "host" was interested in having an inventory performed of all devices/appliances that consumed electricity within the building. The inventory list was divided into three sections (lighting, plug-in and hard wired). The inventory list gives detailed information about the location, type of device, amps, watts and hours on per week. The lighting section also includes the light intensity measured in foot-candles F/C. This information was gathered and put into a spreadsheet for analysis. The spreadsheet calculates the cost of operation for each device and sorts them from the least costly to the most costly. This information allows the auditor to focus on the most energy intensive devices/appliances and make recommendations on how to lower the overall power demands.

ELECTRICAL DEVICE INVENTORY (LIGHTING)

									$0.10
LOCATION	**TYPE OF DEVICE**	**# OF BULBS USED**	**BULB CAPACITY**	**WATTS**	**HOURS ON PER WEEK**	**F/C**	**NOTES**	**watts per week**	**Cost per week**
(N13)(E190) - MT	T8 MAGNETEK	0	2	0	0	0	NOT USED - NEEDS BULBS OR REMOVE	0	$0.00
(N23)(E190) - MT	T12 ADVANCE	0	2	0	0	0	REMOVE IF NOT NEEDED	0	$0.00
(N58)(E115) - RP	T8 ADVANCE	2	2	60	0	105	1 BULB = 0.68A 2 BULB = 1.10A	0	$0.00
(N56)(E103) - T3	T8 ADVANCE	2	2	59	0	67	1 BULB = 0.66A 2 BULB = 1.00A	0	$0.00
(N60)(E110) - T3	T12 LUMICON	2	2	59	0	75	ONLY WORKS WITH 2 BULBS IN - 1.20A	0	$0.00
(N68)(E103) - T3	T12 MAGNETEK	2	2	60	0	32	ONLY WORKS WITH 2 BULBS IN - 1.30A	0	$0.00
(N60)(E98) - T3	T8 ADVANCE	2	2	60	0	47	1 BULB = 0.66A 2 BULB = 1.00A	0	$0.00
(N20)(E8) - LB	T12 ADVANCE	0	4	0	0	0	NOT BEING USED - REMOVE FIXTURE	0	$0.00
(N23)(E4) - LB	T12 ADVANCE	0	4	0	0	0	NOT BEING USED - REMOVE FIXTURE	0	$0.00
(N35)(20) - LB	T12 ADVANCE	0	4	0	0	0	NOT BEING USED - REMOVE FIXTURE	0	$0.00
(N95)(E200) - OS	INCANDESCENT	2	2	120	0	0	OUTSIDE LIGHT NOT ON	0	$0.00
(N8)(E5) - MO	CFL	1	1	7	1	22	DESK LIGHT	7	$0.00
OUTSIDE	CFL	1	1	7	1	0	OUTSIDE LIGHT NOT ON	7	$0.00
(N0)(E140) - OS	CFL SPOT	2	2	7	1	0	OUTSIDE LIGHT NOT ON	14	$0.00
(N0)(E185) - OS	LED SPOT	1	2	7	2	0	OUTSIDE LIGHT NOT ON	14	$0.00
(N10)(E172) - BR	CFL	1	1	13	4	8	DIM LIGHT IN BATHROOM	52	$0.01
(N3)(E172) - SR	T12 MAGNETEK	2	2	34	1	29	ONLY WORKS WITH 2 BULBS IN - 0.82A	68	$0.01
(N45)(E200+) SS	T8 ADVANCE	2	2	59	1	20	1 BULB = 0.68A 2 BULB = 1.10A	118	$0.01
(N70)(E180) - T6	T12 ADVANCE	1	2	60	2	0	ONE END OF SOCKET DAMAGED	120	$0.01
(N3)(E100) - SP	DOCK LIGHT	1	1	120	1	68	INCANDESCENT DOCK LIGHT	120	$0.01

ELECTRICAL DEVICE INVENTORY (LIGHTING)

									$0.10
LOCATION	**TYPE OF DEVICE**	**# OF BULBS USED**	**BULB CAPACITY**	**WATTS**	**HOURS ON PER WEEK**	**F/C**	**NOTES**	**watts per week**	**Cost per week**
(N55)(E200+) SS	T12 ADVANCE	2	2	60	1	15	ONLY WORKS WITH 2 BULBS IN - 1.25A	120	$0.01
(N65)(E200+) SS	T12 ADVANCE	2	2	60	1	18	ONLY WORKS WITH 2 BULBS IN - 1.25A	120	$0.01
(N85)(E200+) SS	T12 ADVANCE	2	2	60	1	16	ONLY WORKS WITH 2 BULBS IN - 1.25A	120	$0.01
(N60)(E188) - T6	T12 MAGNETEK	2	2	59	2	89	T8 BULBS WITH T12 BALLAST	236	$0.02
(N63)(E169) - AJ	T8 MAGNETEK	2	2	59	2	60	T12 BULBS WITH A T8 BALLAST	236	$0.02
(N79)(E142) - IA	T8 PHILLIPS	2	2	59	2	26	1 BULB = 0.68A 2 BULB = 1.00A	236	$0.02
(N89)(E142) - IA	T8 ADVANCE	2	2	59	2	20	1 BULB = 0.68A 2 BULB = 1.10A	236	$0.02
(N89)(E138) - IA	T8 ADVANCE	2	2	59	2	28	1 BULB = 0.68A 2 BULB = 1.10A	236	$0.02
(N94)(E138) - IA	T8 MAGNETEK	2	2	59	2	36	1 BULB = 0.68A 2 BULB = 1.10A	236	$0.02
(N97)(E68) - IL	T8 ATLAS	2	2	59	2	0	BALLAST NEEDS REPLACING-FLICKER	236	$0.02
(N95)(E85) - TD	T8 ADVANCE	2	2	59	2	49	1 BULB = 0.68A 2 BULB = 1.10A	236	$0.02
(N95)(E55) - TD	T8 MAGNETEK	2	2	59	2	40	1 BULB = 0.68A 2 BULB = 1.10A	236	$0.02
(N70)(E45) - RC	T8 MAGNETEK	2	2	59	2	38	1 BULB = 0.68A 2 BULB = 1.10A	236	$0.02
(N58)(E177) - T6	T12 MAGNETEK	2	2	60	2	35	ONLY WORKS WITH 2 BULBS IN - 1.10A	240	$0.02
(N60)(E175) - T6	T12 ADVANCE	2	2	60	2	33	ONLY WORKS WITH 2 BULBS IN - 1.10A	240	$0.02
(N90)(E163) - QC	T12 MAGNETEK	2	2	60	2	54	ONLY WORKS WITH 2 BULBS IN - 1.20A	240	$0.02
(N79)(E138) - IA	T12 MAGNETEK	2	2	60	2	27	ONLY WORKS WITH 2 BULBS IN - 1.20A	240	$0.02
(N95)(E115) - TD	T12 MAGNETEK	2	2	60	2	23	SHELVES OR LIGHT NEEDS MOVING	240	$0.02
(N95)(E72) - TD	T12 MAGNETEK	2	2	60	2	44	ONLY WORKS WITH 2 BULBS IN - 1.20A	240	$0.02
(N95)(E55) - TD	T12 MAGNETEK	2	2	60	2	44	ONLY WORKS WITH 2 BULBS IN - 1.20A	240	$0.02

ELECTRICAL DEVICE INVENTORY (LIGHTING)

									$0.10
LOCATION	**TYPE OF DEVICE**	**# OF BULBS USED**	**BULB CAPACITY**	**WATTS**	**HOURS ON PER WEEK**	**F/C**	**NOTES**	**watts per week**	**Cost per week**
OUTSIDE	INCANDESCENT	2	2	120	1	0	OUTSIDE LIGHT NOT ON	240	$0.02
OUTSIDE	INCANDESCENT	2	2	120	1	0	OUTSIDE LIGHT NOT ON	240	$0.02
(N36)(E30) - BR	T8 ACCUPRO	2	2	32	5	64	U - SHAPED BULBS 1 BULB = 0.35A 2 BULBS = 0.50A	320	$0.03
(N12)(E6) - BR	T12 ADVANCE	2	4	32	5	35	2 BULB = 0.65A 4 BULB = 1.50A	320	$0.03
(N90)(E25) - BH	T8 MAGNETEK	2	4	32	5	0	BULBS OR BALLAST MAY BE BAD	320	$0.03
(N32)(E35) - BR	T12 UNIVERSAL	2	2	34	5	57	ONLY WORKS WITH 2 BULBS IN - 0.65A	340	$0.03
(N43)(E35) - BR	T12 UNIVERSAL	2	2	34	5	50	ONLY WORKS WITH 2 BULBS IN - 0.65A	340	$0.03
(N8)(E30) - CR	T8 MAGNETEK	2	4	32	6	69	NEAR WINDOW	384	$0.04
(N3)(E30) - CR	T8 TRIAD	2	4	32	6	84	NEAR WINDOW	384	$0.04
(N40)(E30) - BR	T12 UNIVERSAL	2	2	40	5	73	U - SHAPED BULBS ARE VERY BRIGHT - 0.75A	400	$0.04
(N32)(E30) - BR	T12 UNIVERSAL	2	2	40	5	83	U - SHAPED BULBS ARE VERY BRIGHT - 0.75A	400	$0.04
(N72)(E65) - AJ	BLACK LIGHT	1	1	20	20	0	INSPECTION BOOTH	400	$0.04
(N72)(E118) - AJ	BLACK LIGHT	1	1	20	20	0	INSPECTION BOOTH	400	$0.04
(N72)(E168) - AJ	BLACK LIGHT	1	1	20	20	0	INSPECTION BOOTH	400	$0.04
(N17)(E32) - PR	LED OPTICS	1	4	15	32	20	1 LED LIGHT BAR = 0.21A	480	$0.05
(N24)(E32) - PR	LED OPTICS	1	4	15	32	26	1 LED LIGHT BAR = 0.21A	480	$0.05
(N17)(E26) - PR	LED OPTICS	1	4	15	32	23	1 LED LIGHT BAR = 0.21A	480	$0.05
(N5)(E200+) BD	T8 ADVANCE	2	2	60	4	13	T12 BULBS WITH T8 BALLAST	480	$0.05
(N10)(E200+) BD	T12 MAGNETEK	2	2	60	4	0	BALLAST NEEDS REPLACING	480	$0.05
(N15)(E200+) BD	T12 ADVANCE	2	2	60	4	10	ONLY WORKS WITH 2 BULBS IN - 1.25A	480	$0.05

ELECTRICAL DEVICE INVENTORY (LIGHTING)

									$0.10
LOCATION	**TYPE OF DEVICE**	**# OF BULBS USED**	**BULB CAPACITY**	**WATTS**	**HOURS ON PER WEEK**	**F/C**	**NOTES**	**watts per week**	**Cost per week**
(N12)(E15) - HW	T12 ADVANCE	2	4	34	8	17	2 BULB = 0.65A 4 BULB = 1.50A	544	$0.05
(N12)(E30) - HW	T12 ADVANCE	2	4	34	8	23	2 BULB = 0.65A 4 BULB = 1.40A	544	$0.05
(N90)(E120) - PO	T8 ADVANCE	1	2	59	10	58	TWO LIGHTS ARE TOO BRIGHT	590	$0.06
(N95)(E120) - PO	T8 ADVANCE	1	2	59	10	46	TWO LIGHTS ARE TOO BRIGHT	590	$0.06
(N2)(E85) - SP	T12 ADVANCE	2	2	40	8	40	1 BULB = 0.35A 2 BULB = 0.71A	640	$0.06
(N90)(E12) - BCR	T8 RETROFIT	2	2	32	10	85	1 BULB = 0.35A 2 BULB = 0.64A	640	$0.06
(N53)(E36) - MC	T8 MAGNETEK	2	4	32	10	55	2 BULB = 0.68A 4 BULB = 1.10A	640	$0.06
(N98)(E25) - BH	T8 ACCUPRO	4	4	32	5	88	MAY BE MORE LIGHT THAN NEEDED	640	$0.06
(N97)(E7) - BCR	T12 ADVANCE	2	4	34	10	36	ONLY WORKS WITH 2 BULBS IN - 0.52A	680	$0.07
(N90)(E17) - BCR	T12 ADVANCE	2	4	34	10	35	ONLY WORKS WITH 2 BULBS IN - 0.67A	680	$0.07
(N97)(E17) - BCR	T12 ADVANCE	2	4	34	10	41	ONLY WORKS WITH 2 BULBS IN - 0.67A	680	$0.07
(N43)(E12) - SL	T12 ADVANCE	2	4	34	10	19	2 BULB = 0.65A 4 BULB = 1.50A	680	$0.07
(N90)(E7) - BCR	T12 ADVANCE	2	4	40	10	28	ONLY WORKS WITH 2 BULBS IN - 0.67A	800	$0.08
(N97)(E12) - BCR	T12 ADVANCE	2	4	40	10	49	ONLY WORKS WITH 2 BULBS IN - 0.67A	800	$0.08
(N60)(E36) - HW	T12 ADVANCE	4	4	40	5	75	2 BULB = 0.80A 4 BULB = 1.50A	800	$0.08
(N0)(E65) - OS	LED SPOT	2	2	5	84	0	OUTSIDE LIGHT NOT ON	840	$0.08
(N24)(E26) - PR	LED OPTICS	2	4	15	32	43	2 LED LIGHT BAR = 0.40A (OVER DESK)	960	$0.10
(N8)(E182) - MT	T8 MAGNETEK	2	2	59	10	22	1 BULB = 0.68A 2 BULB = 1.10A	1180	$0.12
(N8)(E190) - MT	T8 MAGNETEK	2	2	59	10	21	1 BULB = 0.66A 2 BULB = 1.00A	1180	$0.12
(N67)(E54) - T1	T8 ADVANCE	2	2	59	10	55	1 BULB = 0.68A 2 BULB = 1.10A	1180	$0.12

ELECTRICAL DEVICE INVENTORY (LIGHTING)

									$0.10
LOCATION	**TYPE OF DEVICE**	**# OF BULBS USED**	**BULB CAPACITY**	**WATTS**	**HOURS ON PER WEEK**	**F/C**	**NOTES**	**watts per week**	**Cost per week**
(N60)(E52) - T1	T12 MAGNETEK	2	2	60	10	40	ONLY WORKS WITH 2 BULBS IN - 1.20A	1200	$0.12
(N60)(E62) - T1	T12 MAGNETEK	2	2	60	10	46	ONLY WORKS WITH 2 BULBS IN - 1.20A	1200	$0.12
(N58)(E55) - T1	T12 ADVANCE	2	2	60	10	30	1 BULB = 0.68A 2 BULB = 1.10A	1200	$0.12
(N50)(E36) - MCR	T8 MAGNETEK	4	4	32	10	63	2 BULB = 0.68A 4 BULB = 1.10A	1280	$0.13
(N3)(E20) - MO	T12 ADVANCE	2	4	34	20	75	NEAR WINDOWS	1360	$0.14
(N5)(E12) - MO	T12 ADVANCE	2	4	34	20	49	NEAR WINDOWS	1360	$0.14
(N3)(E5) - MO	T12 ADVANCE	2	4	34	20	79	NEAR WINDOWS	1360	$0.14
(N6)(E20) - MO	T12 ADVANCE	2	4	40	20	52	NEAR WINDOWS	1600	$0.16
(N6)(E5) - MO	T12 ADVANCE	2	4	40	20	52	NEAR WINDOWS	1600	$0.16
(N95)(E110) - SO	T8 MAGNETEK	1	2	59	30	46	TWO LIGHTS ARE TOO BRIGHT	1770	$0.18
(N25)(E0) - OS	CFL	1	1	23	84	0	CFL REPLACED 175W BULB	1932	$0.19
OUTSIDE	CFL	1	1	23	84	0	OUTSIDE LIGHT NOT ON	1932	$0.19
OUTSIDE	CFL	1	1	23	84	0	OUTSIDE LIGHT NOT ON	1932	$0.19
OUTSIDE	CFL	1	1	23	84	0	OUTSIDE LIGHT NOT ON	1932	$0.19
(N56)(E130) - T4	T8 ADVANCE	2	2	60	20	34	T12 BULBS WITH A T8 BALLAST	2400	$0.24
(N58)(E135) - T4	T12 ADVANCE	2	2	60	20	47	1 BULB = 0.68A 2 BULB = 1.10A	2400	$0.24
(N69)(E128) - T4	T12 ADVANCE	2	2	60	20	52	ONLY WORKS WITH 2 BULBS IN - 1.10A	2400	$0.24
(N60)(E126) - T4	T12 ADVANCE	2	2	60	20	53	ONLY WORKS WITH 2 BULBS IN - 1.10A	2400	$0.24
(N58)(E118) - RP	T12 ADVANCE	2	2	60	20	91	ONLY WORKS WITH 2 BULBS IN - 1.10A	2400	$0.24
(N43)(E6) - LB	CFL TRACK	3	6	14	60	17	0.20A EACH BULB	2520	$0.25

ELECTRICAL DEVICE INVENTORY (LIGHTING)

									$0.10
LOCATION	**TYPE OF DEVICE**	**# OF BULBS USED**	**BULB CAPACITY**	**WATTS**	**HOURS ON PER WEEK**	**F/C**	**NOTES**	**watts per week**	**Cost per week**
(N43)(E18) - MO	T12 ADVANCE	2	4	34	40	20	2 BULB = 0.68A 4 BULB = 1.50A	2720	$0.27
(N63)(E15) - AD	T12 ADVANCE	2	4	34	50	24	2 BULB = 0.67A 4 BULB = 1.50A	3400	$0.34
(N56)(E15) - AD	T12 ADVANCE	2	4	34	50	26	2 BULB = 0.65A 4 BULB = 1.50A	3400	$0.34
(N70)(E6) - AD	T12 ADVANCE	2	4	34	50	30	2 BULB = 0.65A 4 BULB = 1.50A	3400	$0.34
(N63)(E6) - AD	T12 ADVANCE	2	4	34	50	30	2 BULB = 0.65A 4 BULB = 1.50A	3400	$0.34
(N56)(E6) - AD	T12 ADVANCE	2	4	34	50	27	2 BULB = 0.65A 4 BULB = 1.50A	3400	$0.34
(N80)(E6) - AD	T12 ADVANCE	2	4	34	50	38	HALLWAY LIGHT MAY BE REMOVED	3400	$0.34
(N56)(E77) - T2	T8 MAGNETEK	2	2	59	30	52	1 BULB = 0.66A 2 BULB = 1.20A	3540	$0.35
(N68)(E85) - T2	T8 ADVANCE	2	2	59	30	55	1 BULB = 0.66A 2 BULB = 1.00A	3540	$0.35
(N62)(E75) - T2	T8 ADVANCE	2	2	59	30	54	1 BULB = 0.66A 2 BULB = 1.00A	3540	$0.35
(N63)(E172) - AJ	T12 MAGNETEK	2	2	60	30	61	ONLY WORKS WITH 2 BULBS IN - 1.20A	3600	$0.36
(N58)(E155) - T5	T12 MAGNETEK	2	2	60	30	35	ONLY WORKS WITH 2 BULBS IN - 1.20A	3600	$0.36
(N61)(E160) - T5	T12 MAGNETEK	2	2	60	30	57	ONLY WORKS WITH 2 BULBS IN - 1.20A	3600	$0.36
(N69)(E157) - T5	T12 MAGNETEK	2	2	60	30	46	ONLY WORKS WITH 2 BULBS IN - 1.20A	3600	$0.36
(N66)(E152) - T5	T12 MAGNETEK	2	2	60	30	53	ONLY WORKS WITH 2 BULBS IN - 1.20A	3600	$0.36
(N62)(E87) - T2	T12 MAGNETEK	2	2	60	30	40	ONLY WORKS WITH 2 BULBS IN - 1.20A	3600	$0.36
(N60)(E70) - AJ	T8 ADVANCE	2	2	60	30	45	1 BULB = 0.60A 2 BULB = 1.00A	3600	$0.36
OUTSIDE	CFL	1	1	43	84	0	FLAG LIGHT = 0.36A	3612	$0.36
(N5)(E146) - SP	T8 ADVANCE	2	2	32	60	24	1 BULB = 0.42A 2 BULB = 0.56A	3840	$0.38
(N35)(E8) - LB	T8 MAGNETEK	2	4	32	60	33	2 BULB = 0.60A 4 BULB = 1.40A	3840	$0.38

ELECTRICAL DEVICE INVENTORY (LIGHTING)

									$0.10
LOCATION	**TYPE OF DEVICE**	**# OF BULBS USED**	**BULB CAPACITY**	**WATTS**	**HOURS ON PER WEEK**	**F/C**	**NOTES**	**watts per week**	**Cost per week**
(N22)(E20) - CS	T8 TRIAD	2	4	32	60	38	2 BULB = 0.68A 4 BULB = 1.50A	3840	$0.38
(N24)(E20) - CS	T12 ADVANCE	2	4	32	60	23	2 BULB = 0.68A 4 BULB = 1.50A	3840	$0.38
(N70)(E20) - AD	T12 ADVANCE	2	4	40	50	30	2 BULB = 0.80A 4 BULB = 1.50A	4000	$0.40
(N63)(E20) - AD	T12 ADVANCE	2	4	40	50	22	2 BULB = 0.80A 4 BULB = 1.50A	4000	$0.40
(N56)(E20) - AD	T12 ADVANCE	2	4	40	50	18	2 BULB = 0.78A 4 BULB = 1.50A	4000	$0.40
(N70)(E15) - AD	T12 ADVANCE	2	4	40	50	25	2 BULB = 0.70A 4 BULB = 1.50A	4000	$0.40
(N65)(E36) - SD	T12 ADVANCE	2	4	34	60	17	2 BULB = 0.80A 4 BULB = 1.50A	4080	$0.41
(N68)(E36) - SD	T12 ADVANCE	2	4	34	60	14	2 BULB = 0.80A 4 BULB = 1.50A	4080	$0.41
(N75)(E29) - SD	T12 ADVANCE	2	4	34	60	12	2 BULB = 0.80A 4 BULB = 1.50A	4080	$0.41
(N73)(E29) - SD	T12 ADVANCE	2	4	34	60	12	2 BULB = 0.80A 4 BULB = 1.50A	4080	$0.41
(N73)(E20) - SD	T12 ADVANCE	2	4	34	60	16	2 BULB = 0.80A 4 BULB = 1.50A	4080	$0.41
(N75)(E20) - SD	T12 ADVANCE	2	4	34	60	19	2 BULB = 0.80A 4 BULB = 1.50A	4080	$0.41
(N30)(E8) - LB	T12 ADVANCE	2	4	34	60	19	2 BULB = 0.65A 4 BULB = 1.50A	4080	$0.41
(N20)(E20) - CS	T12 ADVANCE	2	4	34	60	25	2 BULB = 0.65A 4 BULB = 1.50A	4080	$0.41
(N28)(E182) - MT	T8 ADVANCE	2	2	59	40	41	1 BULB = 0.66A 2 BULB = 1.00A	4720	$0.47
(N28)(E190) - MT	T8 PHILLIPS	2	2	59	40	39	1 BULB = 0.65A 2 BULB = 0.99A	4720	$0.47
(N38)(E182) - MT	T8 ATLAS	2	2	59	40	51	1 BULB = 0.69A 2 BULB = 1.10A	4720	$0.47
(N38)(E190) - MT	T8 ADVANCE	2	2	59	40	45	1 BULB = 0.69A 2 BULB = 1.00A	4720	$0.47
(N82)(E95) - IL	T8 ADVANCE	2	2	59	40	39	1 BULB = 0.65A 2 BULB = 1.10A	4720	$0.47
(N89)(E95) - IL	T8 MAGNETEK	2	2	59	40	58	1 BULB = 0.68A 2 BULB = 1.10A	4720	$0.47

ELECTRICAL DEVICE INVENTORY (LIGHTING)

									$0.10
LOCATION	**TYPE OF DEVICE**	**# OF BULBS USED**	**BULB CAPACITY**	**WATTS**	**HOURS ON PER WEEK**	**F/C**	**NOTES**	**watts per week**	**Cost per week**
(N95)(E85) - IL	T8 ADVANCE	2	2	59	40	62	1 BULB = 0.68A 2 BULB = 1.10A	4720	$0.47
(N97)(E75) - IL	T8 ADVANCE	2	2	59	40	68	1 BULB = 0.68A 2 BULB = 1.10A	4720	$0.47
(N90)(E75) - IL	T8 ADVANCE	2	2	59	40	68	1 BULB = 0.75A 2 BULB = 1.20A	4720	$0.47
(N90)(E68) - IL	T12 MAGNETEK	2	2	59	40	54	ONLY WORKS WITH 2 BULBS IN - 1.20A	4720	$0.47
(N80)(E62) - IL	T8 ADVANCE	2	2	59	40	33	1 BULB = 0.67A 2 BULB = 1.00A	4720	$0.47
(N18)(E126) - SP	T8 ADVANCE	2	2	60	40	32	T12 BULBS WITH A T8 BALLAST	4800	$0.48
(N23)(E182) - MT	T12 MAGNETEK	2	2	60	40	26	ONLY WORKS WITH 2 BULBS IN - 1.35A	4800	$0.48
(N33)(E182) - MT	T12 ADVANCE	2	2	60	40	45	ONLY WORKS WITH 2 BULBS IN - 1.10A	4800	$0.48
(N33)(E190) - MT	T12 MAGNETEK	2	2	60	40	54	ONLY WORKS WITH 2 BULBS IN - 1.10A	4800	$0.48
(N95)(E95) - IL	T8 ADVANCE	2	2	60	40	53	T12 BULBS WITH A T8 BALLAST	4800	$0.48
(N19)(E73) - AJ	T8 ADVANCE	2	2	59	48	110	1 BULB = 0.80A 2 BULB = 1.28A	5664	$0.57
(N19)(E75) - AJ	T8 ADVANCE	2	2	59	48	104	1 BULB = 0.64A 2 BULB = 1.10A	5664	$0.57
(N19)(E66) - AJ	T8 ADVANCE	2	2	59	48	124	1 BULB = 0.70A 2 BULB = 1.10A	5664	$0.57
(N19)(E64) - AJ	T8 ADVANCE	2	2	59	48	120	1 BULB = 0.71A 2 BULB = 1.00A	5664	$0.57
(N28)(E65) - AJ	T8 ADVANCE	2	2	59	48	106	1 BULB = 0.70A 2 BULB = 1.10A	5664	$0.57
(N38)(E114) - RP	T8 ADVANCE	2	2	59	48	83	1 BULB = 0.65A 2 BULB = 1.10A	5664	$0.57
(N23)(E164) - AJ	T8 ADVANCE	2	2	59	48	132	1 BULB = 0.65A 2 BULB = 1.10A	5664	$0.57
(N23)(E166) - AJ	T8 ADVANCE	2	2	59	48	120	1 BULB = 0.68A 2 BULB = 1.10A	5664	$0.57
(N23)(E173) - AJ	T8 ADVANCE	2	2	59	48	125	1 BULB = 0.71A 2 BULB = 1.20A	5664	$0.57
(N23)(E175) - AJ	T8 ADVANCE	2	2	59	48	131	1 BULB = 0.66A 2 BULB = 1.00A	5664	$0.57

ELECTRICAL DEVICE INVENTORY (LIGHTING)

									$0.10
LOCATION	**TYPE OF DEVICE**	**# OF BULBS USED**	**BULB CAPACITY**	**WATTS**	**HOURS ON PER WEEK**	**F/C**	**NOTES**	**watts per week**	**Cost per week**
(N33)(E175) - AJ	T8 ADVANCE	2	2	59	48	97	1 BULB = 0.68A 2 BULB = 0.99A	5664	$0.57
(N84)(E170) - QC	T8 ADVANCE	2	2	59	48	60	1 BULB = 0.68A 2 BULB = 1.00A	5664	$0.57
(N84)(E168) - QC	T8 ADVANCE	2	2	59	48	66	1 BULB = 0.68A 2 BULB = 1.00A	5664	$0.57
(N28)(E112) - RP	T12 ADVANCE	2	2	60	48	80	ONLY WORKS WITH 2 BULBS IN - 1.10A	5760	$0.58
(N28)(E114) - RP	T12 ADVANCE	2	2	60	48	81	ONLY WORKS WITH 2 BULBS IN - 1.25A	5760	$0.58
(N28)(E121) - RP	T12 ADVANCE	2	2	60	48	107	ONLY WORKS WITH 2 BULBS IN - 1.20A	5760	$0.58
(N28)(E123) - RP	T12 ADVANCE	2	2	60	48	105	ONLY WORKS WITH 2 BULBS IN - 1.25A	5760	$0.58
(N84)(E190) - QC	T12 ADVANCE	2	2	60	48	61	ONLY WORKS WITH 2 BULBS IN - 1.20A	5760	$0.58
(N89)(E190) - QC	T12 MAGNETEK	2	2	60	48	65	ONLY WORKS WITH 2 BULBS IN - 1.20A	5760	$0.58
(N94)(E190) - QC	T12 MAGNETEK	2	2	60	48	62	ONLY WORKS WITH 2 BULBS IN - 1.20A	5760	$0.58
(N84)(E178) - QC	T12 ADVANCE	2	2	60	48	54	ONLY WORKS WITH 2 BULBS IN - 1.00A	5760	$0.58
(N84)(E160) - QC	T12 MAGNETEK	2	2	60	48	50	ONLY WORKS WITH 2 BULBS IN - 1.20A	5760	$0.58
(N14)(E55) - BA	T8 ADVANCE	2	2	59	60	32	BAD BALLAST WAS REPLACED	7080	$0.71
(N24)(E54) - BA	T8 ADVANCE	2	2	59	60	31	1 BULB = 0.63A 2 BULB = 1.05A	7080	$0.71
(N4)(E48) - BA	T8 ADVANCE	2	2	59	60	34	1 BULB = 0.63A 2 BULB = 1.10A	7080	$0.71
(N4)(E56) - BA	T8 ADVANCE	2	2	59	60	27	1 BULB = 0.65A 2 BULB = 1.00A	7080	$0.71
(N28)(E55) - BA	T8 MAGNETEK	2	2	59	60	36	1 BULB = 0.68A 2 BULB = 1.10A	7080	$0.71
(N13)(E77) - SP	T8 ADVANCE	2	2	59	60	31	T12 BULBS WITH A T8 BALLAST	7080	$0.71
(N4)(E130) - SP	T8 ADVANCE	2	2	59	60	29	1 BULB = 0.68A 2 BULB = 1.00A	7080	$0.71
(N8)(E132) - SP	T8 MAGNETEK	2	2	59	60	52	1 BULB = 0.65A 2 BULB = 1.00A	7080	$0.71

ELECTRICAL DEVICE INVENTORY (LIGHTING)

									$0.10
LOCATION	**TYPE OF DEVICE**	**# OF BULBS USED**	**BULB CAPACITY**	**WATTS**	**HOURS ON PER WEEK**	**F/C**	**NOTES**	**watts per week**	**Cost per week**
(N33)(E132) - SP	T8 ADVANCE	2	2	59	60	25	1 BULB = 0.65A 2 BULB = 1.10A	7080	$0.71
(N94)(E142) - IA	T8 MAGNETEK	2	2	59	60	46	1 BULB = 0.68A 2 BULB = 1.10A	7080	$0.71
(N80)(E48) - RC	T8 ADVANCE	2	2	59	60	31	1 BULB = 0.68A 2 BULB = 1.10A	7080	$0.71
(N75)(E36) - SD	T12 ADVANCE	4	4	40	60	18	2 BULB = 0.80A 4 BULB = 1.50A	9600	$0.96
(N10)(E163) - SP	T8 ADVANCE	2	2	59	168	12	REPLACE WITH SMALLER BULB	19824	$1.98
(N92)(E50) - RC	T8 MAGNETEK	2	2	59	168	36	1 BULB = 0.68A 2 BULB = 1.10A	19824	$1.98
Total cost per week									$51.92

ELECTRICAL DEVICE INVENTORY (PLUG-IN/NON-LIGHTING)

							$0.10
LOCATION	**TYPE OF DEVICE**	**AMPS**	**WATTS**	**HOURS ON PER WEEK**	**NOTES**	**watts per week**	**Cost per week**
COPIER ROOM	ADDING MACHINE	0.20	24.0	0		0	$0.00
ART DEPARTMENT	OKI COPIER	8.00	960.0	0	NOT PLUGGED IN - MAY NOT BE USED	0	$0.00
ART DEPARTMENT	HP SCAN JET	0.25	30.0	0	NOT PLUGGED IN - MAY NOT BE USED	0	$0.00
ART DEPARTMENT TJ'S DESK	EPSON PHOTO SCANNER	0.45	54.0	0		0	$0.00
COMPUTER ROOM	CAMBRIDGE SOUND SYSTEM	0.70	84.0	0	NOT PLUGGED IN	0	$0.00
MAINTENANCE	BELT SANDER	10.00	1200.0	0		0	$0.00
MAINTENANCE	BAND SAW	6.00	720.0	0		0	$0.00
MAINTENANCE	EXHAUST FAN	1.20	100.0	0		0	$0.00
MAIN OFFICE -TOM'S DESK	ADDING MACHINE	0.12	14.0	1		14	$0.00
BREAK AREA	DOOR CHIME	0.15	18.0	1		18	$0.00
PRODUCTION OFFICE	DESK FAN	0.15	18.0	1		18	$0.00
MAINTENANCE	RADIO	0.16	20.0	1		20	$0.00
INK LAB (OFFICE)	RADIO	0.16	20.0	1		20	$0.00
INK LAB (OFFICE)	DESK FAN	0.35	42.0	1		42	$0.00
COPIER ROOM	PAPER folder	0.20	24.0	2		48	$0.00
INK DEPARTMENT	EXHAUST FAN	0.50	60.0	1		60	$0.01
INK DEPARTMENT	EXHAUST FAN	0.50	60.0	1	2 EXHAUST FANS IN DEPARTMENT	60	$0.01
Ray Paul	ZIM PULSAR SPOT CLEANER	0.50	60.0	1		60	$0.01
Ray Paul	ZIM PULSAR SPOT CLEANER	0.50	60.0	1		60	$0.01
SCREEN DEPARTMENT	LIGHT TABLE	0.33	40.0	2		80	$0.01

ELECTRICAL DEVICE INVENTORY (PLUG-IN/NON-LIGHTING)

							$0.10
LOCATION	**TYPE OF DEVICE**	**AMPS**	**WATTS**	**HOURS ON PER WEEK**	**NOTES**	**watts per week**	**Cost per week**
MAIN OFFICE -TOM'S DESK	HP PRINTER	0.94	112.0	1		112	$0.01
BREAK AREA	EXHAUST FAN	0.95	114.0	1		114	$0.01
SCREEN DEPARTMENT	RADIO	0.10	12.0	10		120	$0.01
AIR JET #1	ZIM PULSAR SPOT CLEANER	0.50	60.0	2		120	$0.01
SCREEN DEPARTMENT	TABLE FAN	0.30	38.0	4		152	$0.02
INK DEPARTMENT	FAN	1.29	155.0	1		155	$0.02
SHIPPING AREA	RADIO	0.15	18.0	10		180	$0.02
PAYROLL - DONNA'S OFFICE	CAMBRIDGE SPEAKERS	0.05	6.0	32		192	$0.02
HALL OUTSIDE MAIN OFFICE	PAPER SHREADER	1.00	120.0	2		240	$0.02
ART DEPARTMENT	SAMSUNG MONITOR	0.50	60.0	4		240	$0.02
PRODUCTION OFFICE	PENCIL SHARPENER	2.00	240.0	1		240	$0.02
INK LAB (OFFICE)	PENCIL SHARPENER	2.00	240.0	1		240	$0.02
Ray Paul	PENCIL SHARPENER	2.00	240.0	1		240	$0.02
COPIER ROOM	SHARPE ADDING MACHINE	0.11	13.0	20		260	$0.03
QC - INSPECTION	ZIM PULSAR SPOT CLEANER	0.50	60.0	5		300	$0.03
SCREEN DEPARTMENT	SCREEN WASHER	2.60	315.0	1		315	$0.03
QC - INSPECTION	AIR FAN BOX	0.73	88.0	5	X3 - THREE FANS LOCATED IN AREA	440	$0.04
PRODUCTION AREA	FAN BOX	0.98	118.0	4		472	$0.05
PAYROLL - DONNA'S OFFICE	ADDING MACHINE	0.14	16.8	32		538	$0.05
QC - INSPECTION	RADIO	0.12	14.0	40		560	$0.06

ELECTRICAL DEVICE INVENTORY (PLUG-IN/NON-LIGHTING)

							$0.10
LOCATION	**TYPE OF DEVICE**	**AMPS**	**WATTS**	**HOURS ON PER WEEK**	**NOTES**	**watts per week**	**Cost per week**
SCREEN SANDING	DAYTON MACHINE	5.00	600.0	1		600	$0.06
COMPUTER ROOM	COMPUTER MONITOR	2.50	32.0	20		640	$0.06
MAIN OFFICE -TOM'S DESK	CORDLESS PHONE	0.03	4.0	168		672	$0.07
COPIER ROOM	UNIDEN PHONE	0.03	4.0	168	PHANTOM LOAD - PHONE NOT HOOKED UP	672	$0.07
ART DEPARTMENT TJ'S DESK	ATIVA BATTERY BACK-UP	0.03	4.0	168		672	$0.07
BIG CONFERENCE ROOM	APC BATTERY BACK-UP	0.03	4.0	168		672	$0.07
SALES - CHRISTIE'S OFFICE	APC BATTERY BACK-UP	0.03	4.0	168		672	$0.07
SALES - MELISSAS OFFICE	APC BATTERY BACK-UP	0.03	4.0	168		672	$0.07
ART DEPARTMENT ERIC'S DESK	APC BATTERY BACK-UP	0.03	4.0	168		672	$0.07
COMPUTER ROOM	CYBER POWER	0.03	4.0	168		672	$0.07
COMPUTER ROOM	CYBER POWER	0.03	4.0	168	TWO OF THESE PRESENT	672	$0.07
SCREEN DEPARTMENT	APC BATTERY BACK-UP	0.03	4.0	168		672	$0.07
SHIPPING AREA	APC BATTERY BACK-UP	0.03	4.0	168		672	$0.07
SHIPPING AREA	UNIDEN PHONE	0.03	4.0	168		672	$0.07
SHIPPING AREA	APC BATTERY BACK-UP	0.03	4.0	168		672	$0.07
PRODUCTION OFFICE	APC BATTERY BACK-UP	0.03	4.0	168		672	$0.07
PROD. SUPERVISOR OFFICE	APC BATTERY BACK-UP	0.03	4.0	168		672	$0.07
INK LAB (OFFICE)	UNIDEN PHONE	0.03	4.0	168		672	$0.07
INK LAB (OFFICE)	APC BATTERY BACK-UP	0.03	4.0	168		672	$0.07
SCREEN DEPARTMENT	LIGHT TABLE	1.40	170.0	4		680	$0.07

ELECTRICAL DEVICE INVENTORY (PLUG-IN/NON-LIGHTING)

							$0.10
LOCATION	**TYPE OF DEVICE**	**AMPS**	**WATTS**	**HOURS ON PER WEEK**	**NOTES**	**watts per week**	**Cost per week**
PAYROLL - DONNA'S OFFICE	DESK FAN	0.60	72.0	10		720	$0.07
SALES - CHRISTIE'S OFFICE	ADDING MACHINE	0.12	15.0	50		750	$0.08
COPIER ROOM	SOUND BEAT SPEAKERS	0.50	4.5	168		756	$0.08
PAYROLL - DONNA'S OFFICE	ADDING MACHINE	0.20	24.0	32		768	$0.08
MAIN OFFICE -TOM'S DESK	APC BATTERY BACK-UP	0.04	4.8	168		806	$0.08
MAIN OFFICE -ERIC'S DESK	APC BATTERY BACK-UP	0.04	4.8	168		806	$0.08
PAYROLL - DONNA'S OFFICE	APC BATTERY BACK-UP	0.04	4.8	168		806	$0.08
SMALL CONF. ROOM	APC BATTERY BACK-UP	0.04	4.8	168		806	$0.08
COPIER ROOM	APC BATTERY BACK-UP	0.04	4.8	168		806	$0.08
ART DEPARTMENT	APC BATTERY BACK-UP	0.04	4.8	168		806	$0.08
ART DEPARTMENT	APC BATTERY BACK-UP	0.04	4.8	168		806	$0.08
SALES - MELISSAS OFFICE	DIGITAL CLOCK	0.04	5.0	168		840	$0.08
SCREEN DEPARTMENT	SCREEN DRYER	0.35	42.0	20	X10 IF ALL DRYING FANS ARE ON	840	$0.08
HALL OUTSIDE MAIN OFFICE	COFFEE POT	7.50	900.0	1		900	$0.09
COPIER ROOM	DESK FAN	0.80	96.0	10		960	$0.10
COPIER ROOM	GRANDSTREAM HANDY TONE	1.20	6.0	168		1008	$0.10
COPIER ROOM	UNIDEN PHONE	0.05	6.0	168		1008	$0.10
MAINTENANCE	DRILL PRESS	8.70	1044.0	1		1044	$0.10
BREAK AREA	WASHING MACHINE	2.25	270.0	4	NO INFORMATION LISTED ON UNIT	1080	$0.11
SCREEN DEPARTMENT	UNIDEN PHONE	0.05	6.5	168		1092	$0.11

ELECTRICAL DEVICE INVENTORY (PLUG-IN/NON-LIGHTING)

							$0.10
LOCATION	**TYPE OF DEVICE**	**AMPS**	**WATTS**	**HOURS ON PER WEEK**	**NOTES**	**watts per week**	**Cost per week**
PRODUCTION OFFICE	UNIDEN PHONE	0.50	6.5	168		1092	$0.11
PROD. SUPERVISOR OFFICE	UNIDEN PHONE	0.50	6.5	168		1092	$0.11
INK LAB	DIGITAL SCALES	0.12	14.0	84		1176	$0.12
ART DEPARTMENT	DOOR BELL SPEAKER	0.06	7.2	168		1210	$0.12
ART DEPARTMENT TJ'S DESK	JBL SPEAKERS	0.21	26.0	50		1300	$0.13
COPIER ROOM	HP Box	0.63	8.0	168		1344	$0.13
SHIPPING AREA	DIGITAL SCALES	0.30	36.0	40		1440	$0.14
MAINTENANCE	TABLE SAW	7.00	1610.0	1		1610	$0.16
SCREEN DEPARTMENT	HUMIDIFIER	0.85	100.0	20	NO INFORMATION LISTED ON UNIT	2000	$0.20
HALL OUTSIDE MAIN OFFICE	PLUG-IN FLASH LIGHT	0.10	12.0	168		2016	$0.20
SCREEN DEPARTMENT	FLASH LIGHT	0.10	12.0	168		2016	$0.20
ART DEPARTMENT TJ'S DESK	STEREO EQUIPMENT	0.38	46.0	50		2300	$0.23
INK LAB	DRILL PRESS	6.40	768.0	3		2304	$0.23
MAIN OFFICE -TOM'S DESK	DELL COMPUTER MONITOR	1.00	120.0	20		2400	$0.24
SCREEN DEPARTMENT	CAMBRIDGE SOUND SYSTEM	0.13	15.0	168		2520	$0.25
SHIPPING AREA	LABTEC SPEAKERS	0.25	30.0	84		2520	$0.25
SHIPPING AREA	BIG FLOOR SCALES	0.58	70.0	40	NO INFORMATION ON UNIT	2800	$0.28
COPIER ROOM	SPEAKERS	0.20	24.0	120		2880	$0.29
SALES - MELISSAS OFFICE	HOLMES HEATER	12.50	1500.0	2	1500 WATTS AT MAX. SETTING	3000	$0.30
BREAK AREA	SAMSUNG MICROWAVE	12.50	1500.0	2		3000	$0.30

ELECTRICAL DEVICE INVENTORY (PLUG-IN/NON-LIGHTING)

							$0.10
LOCATION	**TYPE OF DEVICE**	**AMPS**	**WATTS**	**HOURS ON PER WEEK**	**NOTES**	**watts per week**	**Cost per week**
BIG CONFERENCE ROOM	CAMBRIDGE SPEAKERS	0.15	18.0	168		3024	$0.30
BREAK AREA	MAJIC CHEF MICROWAVE	13.00	1600.0	2		3200	$0.32
SALES - CHRISTIE'S OFFICE	ALTEC LANSING SPEAKERS	0.16	20.0	168		3360	$0.34
BIG CONFERENCE ROOM	VHS/DVD PLAYER	0.18	21.0	168		3528	$0.35
MAIN OFFICE -TOM'S DESK	CONFERENCE PHONE	0.20	24.0	168		4032	$0.40
MAIN OFFICE -ERIC'S DESK	CONFERENCE PHONE	0.20	24.0	168		4032	$0.40
PAYROLL - DONNA'S OFFICE	CONFERENCE PHONE	0.20	24.0	168		4032	$0.40
PAYROLL - DONNA'S OFFICE	CONFERENCE PHONE	0.20	24.0	168		4032	$0.40
COPIER ROOM	CONFERENCE PHONE	0.20	24.0	168		4032	$0.40
ART DEPARTMENT	CONFERENCE PHONE	0.20	24.0	168		4032	$0.40
ART DEPARTMENT TJ'S DESK	CONFERENCE PHONE	0.20	24.0	168		4032	$0.40
SALES - CHRISTIE'S OFFICE	CONFERENCE PHONE	0.20	24.0	168		4032	$0.40
SALES - MELISSAS OFFICE	CONFERENCE PHONE	0.20	24.0	168		4032	$0.40
ART DEPARTMENT ERIC'S DESK	CONFERENCE PHONE	0.20	24.0	168		4032	$0.40
COMPUTER ROOM	CONFERENCE PHONE	0.20	24.0	168		4032	$0.40
SCREEN DEPARTMENT	CONFERENCE PHONE	0.20	24.0	168		4032	$0.40
SHIPPING AREA	CONFERENCE PHONE	0.20	24.0	168		4032	$0.40
SHIPPING AREA	CONFERENCE PHONE	0.20	24.0	168		4032	$0.40
SHIPPING AREA	CONFERENCE PHONE	0.20	24.0	168		4032	$0.40
PRODUCTION OFFICE	CONFERENCE PHONE	0.20	24.0	168		4032	$0.40

ELECTRICAL DEVICE INVENTORY (PLUG-IN/NON-LIGHTING)

							$0.10
LOCATION	**TYPE OF DEVICE**	**AMPS**	**WATTS**	**HOURS ON PER WEEK**	**NOTES**	**watts per week**	**Cost per week**
PROD. SUPERVISOR OFFICE	CONFERENCE PHONE	0.20	24.0	168		4032	$0.40
PRODUCTION AREA	WALL CLOCK	0.20	24.0	168		4032	$0.40
PRODUCTION AREA	APC BATTERY BACK-UP	0.03	24.0	168		4032	$0.40
INK LAB (OFFICE)	CONFERENCE PHONE	0.20	24.0	168		4032	$0.40
MAIN OFFICE -ERIC'S DESK	TITAN HEATER	12.50	1500.0	3	1500 WATTS IS THE MAX. SETTING	4500	$0.45
QC - INSPECTION	HEAT PRESS	3.75	450.0	10		4500	$0.45
MAIN OFFICE -ERIC'S DESK	CAMBRIDGE SPEAKERS	1.50	28.0	168		4704	$0.47
PAYROLL - DONNA'S OFFICE	COMPUTER MONITOR	1.25	150.0	32		4800	$0.48
INK LAB	LARGE DIGITAL SCALES	0.50	60.0	84		5040	$0.50
ART DEPARTMENT ERIC'S DESK	COMPUTER MONITOR	1.50	180.0	30	ERIC HAS TWO MONITORS	5400	$0.54
MAINTENANCE	BATTERY CHARGER	0.54	65.0	84		5460	$0.55
QC - INSPECTION	SPRAY OUT MOTOR	9.20	1100.0	5		5500	$0.55
BIG CONFERENCE ROOM	DVD PLAYER	0.30	36.0	168		6048	$0.60
SHIPPING AREA	UNIDEN PHONE	0.30	36.0	168		6048	$0.60
Ray Paul	COOLING FAN MOTOR	6.60	800.0	8	SMALLER MOTOR THAN AIR JET #3	6400	$0.64
QC - INSPECTION	ZEBRA LABEL MACHINE	2.80	336.0	20		6720	$0.67
ART DEPARTMENT	BROTHER DIGITAL PRINTER	5.20	1200.0	6	RATED AT 90VA - NO POWER RATING	7200	$0.72
MAIN OFFICE -ERIC'S DESK	DELL MONITOR	1.00	120.0	60	2X - TWO MONITORS ARE BEING USED	7200	$0.72
ART DEPARTMENT TJ'S DESK	ACER MONITOR	1.20	144.0	50		7200	$0.72
SCREEN DEPARTMENT	COMPUTER MONITOR	1.50	180.0	40		7200	$0.72

ELECTRICAL DEVICE INVENTORY (PLUG-IN/NON-LIGHTING)

							$0.10
LOCATION	**TYPE OF DEVICE**	**AMPS**	**WATTS**	**HOURS ON PER WEEK**	**NOTES**	**watts per week**	**Cost per week**
BREAK AREA	BILGE PUMP	1.50	180.0	40		7200	$0.72
SHIPPING AREA	COMPUTER MONITOR	1.50	180.0	40		7200	$0.72
SHIPPING AREA	DELL MONITOR	1.50	180.0	40		7200	$0.72
MAIN OFFICE -TOM'S DESK	CAMBRIDGE SPEAKERS	0.37	44.0	168		7392	$0.74
INK LAB	INK MIXER	7.00	840.0	10	LOOK AT BUYING A NEW TYPE OF MIXER	8400	$0.84
HALL OUTSIDE MAIN OFFICE	FRIDGE	0.90	108.0	80	PLUGGED IN 24/7, BUT NOT RUNNING ALL THE TIME.	8640	$0.86
SMALL CONF. ROOM	SCEPTRE T.V.	2.50	300.0	30		9000	$0.90
SCREEN DEPARTMENT	VACUUM CLEANER	7.50	900.0	10		9000	$0.90
ART DEPARTMENT	KDS COMPUTER	1.00	120.0	80		9600	$0.96
SMALL CONF. ROOM	POLYCOM SPEAKER PHONE	0.50	60.0	168		10080	$1.01
ART DEPARTMENT	SAMSUNG MONITOR	1.80	216.0	50		10800	$1.08
ART DEPARTMENT	SAMSUNG MONITOR	1.80	216.0	50		10800	$1.08
MAINTENANCE	WELDER	47.50	10925.0	1		10925	$1.09
BREAK AREA	KENMORE STOVE	60.00	14000.0	1	60 AMPS IF ALL BURNERS ARE ON	14000	$1.40
SMALL CONF. ROOM	CAMBRIDGE SPEAKERS	0.70	85.0	168		14280	$1.43
COPIER ROOM	COMPUTER MONITOR	1.00	120.0	120		14400	$1.44
INK LAB (OFFICE)	COMPUTER MONITOR	1.50	180.0	80		14400	$1.44
SMALL CONF. ROOM	DELL LAP TOP	1.50	180.0	80		14400	$1.44
SMALL CONF. ROOM	DELL HYBRID	1.50	180.0	80		14400	$1.44
ART DEPARTMENT ERIC'S DESK	IBM COMPUTER	1.50	180.0	80		14400	$1.44

ELECTRICAL DEVICE INVENTORY (PLUG-IN/NON-LIGHTING)

							$0.10
LOCATION	**TYPE OF DEVICE**	**AMPS**	**WATTS**	**HOURS ON PER WEEK**	**NOTES**	**watts per week**	**Cost per week**
PAYROLL - DONNA'S OFFICE	HOLMES HEATER	12.50	1500.0	10	1500 WATTS IS THE MAX. SETTING	15000	$1.50
ART DEPARTMENT	HEATER	12.50	1500.0	10		15000	$1.50
SALES - CHRISTIE'S OFFICE	HOLMES HEATER	12.50	1500.0	10	1500 WATTS AT MAX. SETTING	15000	$1.50
ART DEPARTMENT ERIC'S DESK	HOLMES HEATER	12.50	1500.0	10	1500 WATTS AT MAX. SETTING	15000	$1.50
SHIPPING AREA	TITAN HEATER	12.50	1500.0	10	15 AMPS AT HIGHEST SETTING	15000	$1.50
COMPUTER ROOM	TEAC SERVER	0.85	102.0	168		17136	$1.71
PRODUCTION OFFICE	COMPUTER MONITOR	1.50	180.0	100		18000	$1.80
ART DEPARTMENT	THERMO IMPRESSION	8.00	960.0	20	GUESSED NO CURRENT/WATT RATINGS SHOWN	19200	$1.92
PROD. SUPERVISOR OFFICE	COMPUTER MONITOR	1.60	192.0	100		19200	$1.92
PRODUCTION AREA	COMPUTER MONITORS	1.00	120.0	160	X4 MONITORS	19200	$1.92
BIG CONFERENCE ROOM	IBM COMPUTER	2.00	240.0	80		19200	$1.92
COMPUTER ROOM	VINA ETHERNET	1.00	120.0	168		20160	$2.02
PLASTISOL SCREEN SANDING	NEWTON BATTERIES	1.00	120.0	168		20160	$2.02
PLASTISOL SCREEN SANDING	NEWTON BATTERIES	1.00	120.0	168		20160	$2.02
SHIPPING AREA	HP LASER JET	4.50	540.0	40		21600	$2.16
SHIPPING AREA	ZEBRA LABEL MACHINE	1.50	180.0	120		21600	$2.16
QC - INSPECTION	DELL LAPTOP	1.50	180.0	120		21600	$2.16
ART DEPARTMENT	IBM COMPUTER	4.00	480.0	50		24000	$2.40
PRODUCTION OFFICE	DELL COMPUTER	2.00	240.0	100		24000	$2.40
PROD. SUPERVISOR OFFICE	DELL COMPUTER	2.00	240.0	100		24000	$2.40

ELECTRICAL DEVICE INVENTORY (PLUG-IN/NON-LIGHTING)

							$0.10
LOCATION	**TYPE OF DEVICE**	**AMPS**	**WATTS**	**HOURS ON PER WEEK**	**NOTES**	**watts per week**	**Cost per week**
BREAK AREA	DRYER	27.00	6210.0	4	NO INFORMATION LISTED ON UNIT	24840	$2.48
ART DEPARTMENT	HEAT PRESS	20.00	4400.0	6		26400	$2.64
PRODUCTION AREA	WATER FOUNTAIN	2.75	330.0	80	2.75 AMPS WHEN COOLING	26400	$2.64
PAYROLL - DONNA'S OFFICE	DELL COMPUTER	7.00	840.0	32		26880	$2.69
COPIER ROOM	ELTRON LABEL MACHINE	2.00	240.0	120		28800	$2.88
SALES - CHRISTIE'S OFFICE	DELL MONITOR	1.50	180.0	168		30240	$3.02
SALES - CHRISTIE'S OFFICE	WESTINGHOUSE MONITOR	1.50	180.0	168		30240	$3.02
SALES - MELISSAS OFFICE	COMPUTER MONITOR	1.50	180.0	168	MONITOR IN SLEEP MODE, BUT NOT OFF	30240	$3.02
ART DEPARTMENT ERIC'S DESK	COMPUTER MONITOR	1.50	180.0	168		30240	$3.02
ART DEPARTMENT TJ'S DESK	APPLE COMPUTER	3.60	432.0	80		34560	$3.46
ART DEPARTMENT	DELL COMPUTER	3.60	432.0	80		34560	$3.46
SCREEN DEPARTMENT	LG AIR CONDITIONER	7.80	1800.0	20		36000	$3.60
COPIER ROOM	CANNON COPIER	5.20	624.0	60		37440	$3.74
MAIN OFFICE -TOM'S DESK	SAMSUNG PRINTER	4.00	480.0	80		38400	$3.84
SALES - CHRISTIE'S OFFICE	DELL COMPUTER	4.00	480.0	80		38400	$3.84
COMPUTER ROOM	CISCO FIREWALL	2.00	240.0	168		40320	$4.03
RECLAIM DEPARTMENT	PRESSURE WASHER	22.00	5060.0	8		40480	$4.05
INK LAB (OFFICE)	LASER JET PRINTER	4.50	540.0	80		43200	$4.32
BREAK AREA	COFFEE POT	7.50	900.0	50		45000	$4.50
COPIER ROOM	XEROX COPIER	5.00	600.0	80		48000	$4.80

ELECTRICAL DEVICE INVENTORY (PLUG-IN/NON-LIGHTING)

							$0.10
LOCATION	**TYPE OF DEVICE**	**AMPS**	**WATTS**	**HOURS ON PER WEEK**	**NOTES**	**watts per week**	**Cost per week**
BREAK AREA	WATER FOUNTAIN	5.00	600.0	84	5.0 AMPS WHEN COOLING	50400	$5.04
ART DEPARTMENT	APPLE COMPUTER	8.00	960.0	60		57600	$5.76
ART DEPARTMENT TJ'S DESK	APPLE COMPUTER	6.00	720.0	80		57600	$5.76
ART DEPARTMENT	DELL COMPUTER	6.00	720.0	80		57600	$5.76
SCREEN DEPARTMENT	DELL COMPUTER	6.00	720.0	80		57600	$5.76
BREAK AREA	SNACK MACHINE	3.00	360.0	168		60480	$6.05
SHIPPING AREA	DELL COMPUTER	6.00	720.0	84		60480	$6.05
BREAK AREA	REFIDGERATOR	6.50	780.0	80	6.5 AMPS WHEN IN COOLING MODE	62400	$6.24
SCREEN DEPARTMENT	SCREEN BURNER	55.00	12650.0	5		63250	$6.33
AIR JET #1	COOLING FAN MOTOR	8.00	1664.0	40		66560	$6.66
INK LAB (OFFICE)	DELL COMPUTER	7.00	840.0	80		67200	$6.72
MAIN OFFICE -TOM'S DESK	DELL COMPUTER	7.00	840.0	80		67200	$6.72
MAIN OFFICE -ERIC'S DESK	ACER COMPUTER	7.00	840.0	80		67200	$6.72
COPIER ROOM	DELL DESK TOP COMPUTER	7.00	840.0	80		67200	$6.72
SALES - MELISSAS OFFICE	DELL COMPUTER	7.00	840.0	80	COMPUTER LEFT ON	67200	$6.72
ART DEPARTMENT ERIC'S DESK	DELL COMPUTER	7.00	840.0	80		67200	$6.72
PRODUCTION AREA	DELL COMPUTER	7.00	840.0	80		67200	$6.72
SHIPPING AREA	DELL COMPUTER	5.00	600.0	120		72000	$7.20
SHIPPING AREA	HP LASER JET	7.80	936.0	80	NOT PLUGGED IN	74880	$7.49
Ray Paul	COOLING FAN MOTOR	9.50	1976.0	40	A SMALLER MOTOR COULD WORK	79040	$7.90

ELECTRICAL DEVICE INVENTORY (PLUG-IN/NON-LIGHTING)							
							$0.10
LOCATION	**TYPE OF DEVICE**	**AMPS**	**WATTS**	**HOURS ON PER WEEK**	**NOTES**	**watts per week**	**Cost per week**
COMPUTER ROOM	SAMSUNG AIR CONDITIONER	8.00	1000.0	80	NO CURRENT RATING ON UNIT	80000	$8.00
PRODUCTION OFFICE	HP PRINTER	7.80	936.0	100		93600	$9.36
BREAK AREA	DRINK MACHINE	10.00	1200.0	80		96000	$9.60
PAYROLL - DONNA'S OFFICE	HP PRINTER	4.80	576.0	168		96768	$9.68
COPIER ROOM	DELL COMPUTER	7.00	840.0	120		100800	$10.08
COMPUTER ROOM	IBM THINK CENTER	5.00	600.0	168		100800	$10.08
COMPUTER ROOM	DELL SERVER	5.00	600.0	168		100800	$10.08
BREAK AREA	ICE MACHINE	15.00	1800.0	80	15.0 AMPS WHEN MAKING ICE	144000	$14.40
Total cost per week							$365.86

ELECTRICAL DEVICE INVENTORY (HARD WIRED/NON-LIGHTING)

							$0.10
LOCATION	**TYPE OF DEVICE**	**AMPS**	**WATTS**	**HOURS ON PER WEEK**	**NOTES**	**watts per week**	**Cost per week**
TAS #3	CONTROL PANEL	5.00	600.0	0		0	$0.00
TOP DECK (INSIDE)	RHEEM HEATING ELEMENTS	40.00	9200.0	0	HEATERS ARE NOT FUNCTIONING	0	$0.00
INK LAB	EXHAUST FAN	1.50	186.0	1		186	$0.02
MAINTENANCE	EXHAUST FAN	4.50	540.0	1		540	$0.05
Ray Paul	SPOT CLEANING STATION	7.50	900.0	1		900	$0.09
BREAK AREA	DISH WASHER	2.70	325.0	3	NO INFORMATION LISTED ON UNIT	975	$0.10
PLASTISOL SCREEN SANDING	EXHAUST FAN	4.50	540.0	2	VERY DIRTY - NEEDS CLEANING	1080	$0.11
Ray Paul	CONVEYOR DRIVE MOTOR	1.50	135.0	20	90VDC 1/8HP MOTOR	2700	$0.27
QC INSPECTION	LARGE EXHAUST FAN	3.40	707.0	5		3535	$0.35
TAS #4	CONTROL PANEL	5.00	600.0	10		6000	$0.60
AIR JET #1	SPOT CLEANING STATION	11.50	1380.0	5		6900	$0.69
PLASTISOL SCREEN SANDING	WASHER PUMP MOTOR	17.00	3910.0	2		7820	$0.78
TAS #1	CONTROL PANEL	0.41	50.0	168		8400	$0.84
TAS #2	CONTROL PANEL	0.41	50.0	168	TOUCH PAD DIGITAL CONTROLLER	8400	$0.84
TAS #5	CONTROL PANEL	0.41	50.0	168	TOUCH PAD DIGITAL CONTROLLER	8400	$0.84
TOP DECK (INSIDE)	RHEEM INDOOR BLOWER FAN	2.70	621.0	20		12420	$1.24
SCREEN DEPARTMENT	WATER HEATER	30.00	6240.0	2		12480	$1.25
TOP DECK	LARGE EXHAUST FAN	3.40	707.0	20		14140	$1.41
SHIPPING	GAS HEATER #1	3.00	360.0	40		14400	$1.44
SHIPPING	GAS HEATER #2	3.00	360.0	40		14400	$1.44

ELECTRICAL DEVICE INVENTORY (HARD WIRED/NON-LIGHTING)

							$0.10
LOCATION	**TYPE OF DEVICE**	**AMPS**	**WATTS**	**HOURS ON PER WEEK**	**NOTES**	**watts per week**	**Cost per week**
QC INSPECTION	GAS HEATER #3	3.00	360.0	40		1440	$1.44
INK DEPARTMENT	GAS HEATER #4	3.00	360.0	40		14400	$1.44
SHIPPING	GAS HEATER #5	3.00	360.0	40		14400	$1.44
AIR JET #2	CONVEYOR DRIVE MOTOR	5.50	495.0	40	230VAC 1/2 HP	19800	$1.98
AIR JET #1	CONVEYOR DRIVE MOTOR	5.50	495.0	40		19800	$1.98
Ray Paul	EXHAUST MOTOR	5.20	1082.0	20		21640	$2.16
EMPLOYEE ENTRANCE	INDOOR BLOWER FAN (TRANE #1)	5.00	1150.0	20	INDOOR BLOWER FAN FOR TRANE #1	23000	$2.30
NEAR SHIPPING (INSIDE)	INDOOR BLOWER FAN (HEIL)	5.00	1150.0	20		23000	$2.30
MAINTENANCE (INSIDE)	INDOOR BLOWER FAN (HEIL)	5.00	1150.0	20		23000	$2.30
QC INSPECTION (INSIDE)	INDOOR BLOWER FAN (HEIL)	5.00	1150.0	20		23000	$2.30
TOP DECK (INSIDE)	INDOOR BLOWER FAN	6.00	1380.0	20		27600	$2.76
TAS #1	INK DRYING LIGHT	7.60	1600.0	20	6X - 6 BULBS AT 1,600W EACH	32000	$3.20
TAS #4	INK DRYING LIGHTS	7.60	1600.0	30	27X - 3 PANELS WITH 9 BULBS IN EACH	48000	$4.80
INK LAB (OUTSIDE)	AIR CHILLER	20.00	4800.0	10	Guessed NO INFORMATION ON UNIT	48000	$4.80
INK LAB (OUTSIDE)	NO NAME A/C UNIT	12.00	2760.0	20		55200	$5.52
INK DEPARTMENT (OUTSIDE)	RHEEM A/C UNIT	14.00	2932.0	20	INSULATION ON SUCTION SIDE NEEDS REPLACING	58640	$5.86
NEAR SHIPPING (OUTSIDE)	HEIL A/C UNIT	20.80	4326.0	20	TOTAL AMPS FOR OUTSIDE UNIT	86520	$8.65
MAINTENANCE (OUTSIDE)	HEIL A/C UNIT	20.80	4326.0	20	TOTAL AMPS FOR OUTSIDE UNIT	86520	$8.65
QC INSPECTION (OUTSIDE)	HEIL A/C UNIT	20.80	4326.0	20	TOTAL AMPS FOR OUTSIDE UNIT	86520	$8.65
INK DEPARTMENT (OUTSIDE)	TRANE #2 A/C UNIT	20.90	4347.0	20	INSULATION ON SUCTION SIDE NEEDS REPLACING	86940	$8.69

ELECTRICAL DEVICE INVENTORY (HARD WIRED/NON-LIGHTING)

							$0.10
LOCATION	**TYPE OF DEVICE**	**AMPS**	**WATTS**	**HOURS ON PER WEEK**	**NOTES**	**watts per week**	**Cost per week**
TOP DECK	WATER HEATER	19.50	4500.0	20		90000	$9.00
Ray Paul	BLOWER MOTOR	22.70	4722.0	20		94440	$9.44
INK LAB (OUTSIDE)	NO NAME HEATER UNIT	20.00	4800.0	20		96000	$9.60
EMPLOYEE ENTRANCE	TRANE #1 A/C UNIT	21.60	4968.0	20	TOTAL AMPS FOR OUTSIDE UNIT	99360	$9.94
BIG CONFERENCE ROOM (OUTSIDE)	GAS PAC #1	27.14	5645.0	20	TOTAL AMPS FOR COOLING MODE	112900	$11.29
BIG CONFERENCE ROOM (OUTSIDE)	GAS PAC #2	27.14	5645.0	20	TOTAL AMPS FOR COOLING MODE	112900	$11.29
INK LAB	DIE TUB	12.50	3000.0	40	2X - TWO HEATERS AT 3,000W EACH	120000	$12.00
TAS #2	INK DRYING LIGHTS	7.60	1600.0	90	27X - 3 PANELS WITH 9 BULBS IN EACH	144000	$14.40
TAS #5	INK DRYING LIGHTS	7.60	1600.0	90	27X - 3 PANELS WITH 9 BULBS IN EACH	144000	$14.40
INK LAB (OUTSIDE)	AIR COMPRESSOR	72.50	15080.0	15	LAG COMPRESSOR	226200	$22.62
AIR JET #2	MAIN CONTROL PANEL 1	35.00	7280.0	40	CONTROLS ALL MOTORS AND EQUIP.	291200	$29.12
AIR JET #2	MAIN CONTROL PANEL 2	35.00	7280.0	40	CONTROLS ALL MOTORS AND EQUIP.	291200	$29.12
AIR JET #1	MAIN CONTROL PANEL 1	35.00	7280.0	40		291200	$29.12
AIR JET #1	MAIN CONTROL PANEL 2	35.00	7280.0	40		291200	$29.12
INK LAB (OUTSIDE)	AIR COMPRESSOR	72.50	15080.0	30	LEAD COMPRESSOR	452400	$45.24
Total cost per week							$379.31

Natural Gas: (T.S. Designs)

Natural gas is used at both facilities for heating and hot water purposes. The Willow Springs facility (TS Designs) uses a majority of its natural gas for production purposes. TS Designs has three large gas dryers that use millions of Btus when they are all running. There are limitations on what can be done to reduce the consumption of gas by the dryers, because it could be dangerous to alter the design of the machines. The best method for saving natural gas is by sealing up the envelope to reduce air infiltrations, primarily during the winter months. The dye house facility is located at a different location and it has not been studied sufficiently enough at this time to make any recommendations.

Findings for natural gas:

1.) The dryers are often left unattended during warming up and cooling down periods.
2.) Gas heater in break area is not working.
3.) The gas water heater near the break area doesn't appear to have an energy star rating.
4.) The intake air manifolds for the dryers are too close to the floor and it is pulling the coolest air out of the building to be heated.

Recommendations for natural gas:

- Have an electrician install an alarm that is triggered when the dryer temperatures have reached their desired set points. This is only an alarm and it will not have any affect on the dryer controls. The alarms only intention is to make the operators aware of its "ready" condition.
- The gas heater in the break area is not working and needs to be repaired.
- The gas water heater is not an energy star appliance, but it does have an insulation blanket wrapped around the tank. When the unit fails replace it with an energy star appliance.
- The make-up air that is used by the dryers is coming directly off the floor. This is the coolest layer of air in the production area and a vent stack should be used to draw warmer air from higher up nearer to the ceiling.

Water: (T.S. Designs)

The water used at TS Design (Willow Springs) facility is primarily for the bathrooms and a garden that is located on the premises. The garden uses a lot of water during the summer months but it provides locally grown food for all employees, so eliminating the garden is out of the question. The host has already addressed many of the water issues that exist within and around the facilities. Rainwater is being collected from the roof to water some of the trees and plants. The water collected from the ice machine and A/C units are being used to flush one of the toilets. The die house uses a majority of its water for production needs and it fluctuates depending on business.

Findings for water:

1.) Water is leaking from the quick connect attached to the facet in the ink lab.
2.) There are no timers or controls to the outdoor facets that are used to water some of the trees and garden.
3.) There are 6 commodes and 2 wall urinals within the building. The two wall urinals are water saving models but only half the commodes are low flow types.

Recommendations for water:

- Replace the quick connect for the ink lab facet because it is leaking 2 gallons/hour and the spreadsheet shows that "water" is costing $0.013/gallon for both water and sewer combined. At that rate, the leaking facet connector is wasting 80 gallons a week if left on for a 40-hour workweek. That translates into $1.04/week or $4.16/month. As you can see the pay back wouldn't take but a few months.
- A timer controlled water valve needs to be placed on all of the outdoor facets that are used to water the plants/garden.
- Replace the 3 standard commodes with water saving models as needed. The payback would be several years and it would only be done on as needed basis.