Commonwealth Attorney's Office Energy Audit
April 24, 2008
Executive Summary

The Commonwealth Attorney's office, built in 1901, has an energy usage of $4.22 per sq. ft. per year. This is very high compared to other buildings in the County. It is a brick building with un-insulated walls. Floors and ceiling have some insulation. Reductions in the range of 10% are possible. This would yield a savings of $350.00 per year.

Primarily; by installing a programmable thermostat, setting back temperatures on nights, weekends and holidays and repairing leaky ductwork would allow for these savings. Weather-stripping the rear door would also help. There is not a large opportunity to save energy at the Commonwealth Attorney's office, but some significant improvements could be made.

Submitted by: Curtis Putnam

Recommendations from Energy Audit of
Commonwealth Attorney's Office
May 27, 2008

- Weather-strip rear door
- Add insulation to ceiling up to recommended standard.
- Install programmable thermostat.
- Setback temperature 10°F at nights, weekends and holidays.
- Basement is being cooled excessively investigate this.
- Experiment with start up and coasting temperatures.
- Clean air intake and move cabinet away from it
- Delamp by 50% and remove ballast.

2. ANNUAL ELECTRIC USE AND COST

Include Electrical Demand, if applicable

Building	Address	Year of Record
Commonwealth Atty	211 Main Street Palmyra VA 22963	From 3-07 1 3-08 To

Account Number	Meter Number	Utility
1284152509	015842810	Dominion

Maximum kW Demand W/O charge	Minimum Power Factor W/O charge	Building size (sqft)
—	—	933

1	2	3	4	5	6	7	8	9	10
Meter Read Date From	To	KWh* Used	KWh/gross sq.ft. **	Annual (EUI) BTU/sqft ~~(000)~~	Energy Cost	KW-KVA Demand	Fixed Service Cost	P.F. * and Demand Cost***	Total Cost
3-27	4-27	818							61.43
4-27	5-25	888							69.03
5-25	6-27	1523							120.53
6-27	7-27	1426							128.62
7-27	8-27	1663							151.14
8-27	9-21	1129							103.45
9-21	10-23	1017							99.81
10-23	11-28	815							76.87
11-28	12-27	705							67.25
12-27	1-30	790							74.67
1-30	2-27	681							65.21
2-27	3-28	697							66.53
TOTAL		12,152	13.0247	44,453					1084.59

Electric Cost/Sq ft. $1.624

Comments:

Conversion: 3413 BTU/kWh

*KW – Kilowatts, KVA – Kilo-Volt-ampere, KWH – Kilowatt hour, P.F. – Power Factor

**Total annual kWh divided by the building's gross sq. ft.

***If demand and/or power factor are metered and billed, energy cost here.

3. ANNUAL NON-ELECTRIC ENERGY USE AND COST

Photo copy this form for additional fuel types

Building	Address	Year of Record
Comm. Atty	211 Main Street	From 3-07 To 3-08
Account Number 9441330	**Meter Number**	**Utiilty**
Building Size (sq ft)	**Fuel Type**	**Specify Units**

Billing Period From	To	Fuel consumption	Conversion Factor	MMBTU	Annual (EUI) Btu/sq.ft.	Cost $
3-1		201 *				463.63
11-5		193.9				530.70
1-9		251.5				700,93
3-19		220.1				735.57
TOTAL		875.5	138690	12142	122,279	2430.83

* wet $2.60
Elect 1.62
$4,22/sq ft - yr.

Comments: Elec EUI 44,453
Fuel EUI 122,297
Total EUI 166,732

***Conversion Factors**

Natural Gas	100,000 Btu/therm
Natural Gas	1,030 Btu/cubic feet
Liquified Petroleum	(LP bottled gas) 95475 Btu/gallon
Kerosene	134,000 Btu/gallon
Distillate Fuel Oil	138,690 Btu/gallon
Residual Fuel Oil	149,690 Btu/gallon
Coal	24.5 million Btu per Standard short ton
Wood	8,680 Btu/pound
Steam	970 Btu/pound
Other	Consult standard Engineering Reference Manual

11. ENERGY SAVINGS

INSTRUCTIONS: This section is to be completed by the auditor after the walk-through portions of the audit. First, check the boxes which state the range of the percent of energy consumption which would be saved by implementing the operation and maintenance items recommended in section 2 of this book. Second, calculate the range of energy and cost savings by multiplying the estimated percentages by the annual electrical and fuel consumption date on this audit report.

Check two boxes in each category:

Range of Electrical Savings [ ]0% [ ]5% [ ]10% [ ]15% [ ]20% [ ]25% [ ]Other____

Range of Fuel Savings [ ]0% [ ]5% [ ]10% [ ]15% [ ]20% [ ]25% [ ]Other____

Calculate ranges of energy and cost savings:

Range of Electrical Savings

	% Range		Annual Electrical consumption kWh	=	Range of Electrical savings kWh	% Range		Annual Electrical dollars spent	=	Range of Electrical Dollar savings
Lower Bound	10	X	12,152	=	1,215	10	X	$ 1085	=	$ 108
Upper bound	15	X	12,152	=	1,823	15	X	$ 1085	=	$ 163

Range of Fuel Savings

	% Range		Annual fuel consumption mmBtu ~~Btu~~	=	Range of fuel savings mmBtu	% Range		Annual Fuel dollars spent	=	Range of Fuel Dollar savings
Lower Bound	10	X	121.42	=	12.14	10	X	$ 2431	=	$ 243
Upper bound	15	X	121.42	=	18.21	15	X	$ 2431	=	$ 365

The auditor is not responsible if actual savings resulting from the implementation of the energy conservation opportunities listed in this section do not fall between the roughly estimated ranges which are specified.

Total Range of operation and maintenance energy savings (total all fuels):

From _____ Btu to _____Btu.
(lower bound) (upper bound)

Comments: