

The Annual Energy Consumption Impact of Building Faults			
	NATIONAL ENERGY WASTE (QUADS, PRIMARY/YEAR)	ELECTRICITY EQUIVALENT (BkWh/YR)	COST (\$ BILLION/YR)
DUCT LEAKAGE	0.300	28.6	2.9
HVAC LEFT ON WHEN SPACE UNOCCUPIED	0.200	19.0	1.9
LIGHTS LEFT ON WHEN SPACE UNOCCUPIED	0.180	17.1	1.7
AIRFLOW NOT BALANCED	0.070	6.7	0.7
IMPROPER REFRIGERANT CHARGE	0.070	6.7	0.7
DAMPERS NOT WORKING PROPERLY	0.055	5.2	0.5
INSUFFICIENT EVAPORATOR AIRFLOW	0.035	3.3	0.3
IMPROPER CONTROLS SETUP / COMMISSIONING	0.023	2.2	0.2
CONTROL COMPONENT FAILURE OR DEGRADATION	0.023	2.2	0.2
SOFTWARE PROGRAMMING ERRORS	0.012	1.1	0.1
IMPROPER CONTROLS HARDWARE INSTALLATION	0.010	1.0	0.1
ARI-COOLED CONDENSER FOULING	0.008	0.8	0.1
VALVE LEAKAGE	0.007	0.7	0.1
TOTAL (CENTRAL ESTIMATE)	0.993	94.6	9.5
Assumes energy cost of \$.10 / kWh and 10,500 BTU/kWh			

Adapted from: Table 8-3

Roth, Kurt et. al. "Energy Impact of Commercial Building Controls and Performance Diagnostics: Market Characterization, Energy Impact of Building Faults and Energy Savings Potential", final report for Building Technologies Program (DOE), 2005.

Leaky rectangular ductwork accounts for an estimated 28.6 BkWh (TWh) per year of additional energy consumption and costs building owners \$ 2.9 billion every year. This represents 2.7% of the total electricity consumed each year in non-residential buildings in the United States and 20% of the total electricity generated in the US by all renewable power generation sources combined.