Initial Energy Performance Ratings for Municipal Buildings, Lebanon, CT
An Overview

Why is this being done?

The Town of Lebanon has taken the EPA Community Challenge pledge to reduce total energy use 10% by 2013. To achieve this, the town buildings are receiving an energy audit by Siemens Building Technologies, Inc., a contractor for Connecticut Conference of Municipalities (CCM). The audit is a free service provided to towns that purchase their electricity generation through CCM.

Siemens is looking at all systems in town buildings for potential energy saving improvements. Most of the lighting in town buildings was upgraded to more efficient systems as a result of an audit done several years ago through ConServ, a contractor for CL&P. These improvements have saved money on lighting costs. That audit, however, did not look at things like boiler and furnace efficiency, building envelope issues (insulation, windows, roofs) and ventilation. The Siemens audit will.

What happens after the town gets the audit results?

Siemens will make recommendations for energy efficiency practices and improvements to town buildings that will pay for themselves through reduced energy costs. When the report is received by the Board of Selectmen and Board of Education, the benefits and costs of all the recommendations will be discussed for further action. Active participants in this process include the town and schools facilities and business managers.

Why isn't the Senior Center listed?

The Senior Center began full time operation in January 2009. A year's worth of data is needed in order to get an energy performance rating. Siemens did tour the building and the energy consumption data is being entered into Portfolio Manager.

How should I interpret the tables?

Until we receive the results of the audit it is not wise to interpret the data too deeply. The data seem to show that the lighting improvements made last year were beneficial in helping the buildings achieve greater energy efficiency.

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Data for year ending 11/30/2008

Fire Safety Complex & Dog Pound

	Current	Target (6)
Energy Performance Rating (1)	50	75
Site Energy Intensity (2)	61	45
Source Energy Intensity (3)	100	74
Annual Energy Cost (4)	$20,025	$14,850
Annual Energy Cost/S.F. of Building	$1.11	$0.82

Elementary School

	Current	Target (6)
Energy Performance Rating	38	75
Site Energy Intensity	66	47
Source Energy Intensity	115	81
Annual Energy Cost	$99,199	$70,193
Annual Energy Cost/S.F. of Building	$1.36	$0.96

Town Hall

	Current	Target (6)
Energy Performance Rating (1)	77	75
Site Energy Intensity (2)	34	35
Source Energy Intensity (3)	112	116
Annual Energy Cost (4)	$5,213	$5,395
Annual Energy Cost/S.F. of Building	$0.76	$0.79

Middle School

	Current	Target (6)
Energy Performance Rating (1)	40	75
Site Energy Intensity (2)	80	57
Source Energy Intensity (3)	135	97
Annual Energy Cost (4)	$114,312	$82,005
Annual Energy Cost/S.F. of Building	$1.62	$1.16

Jonathan Trumbull Library

	Current	Target (6)
Energy Performance Rating (1)	N/A (5)	N/A
Site Energy Intensity (2)	45	N/A
Source Energy Intensity (3)	125	N/A
Annual Energy Cost (4)	$6,439	N/A
Annual Energy Cost/S.F. of Building	$1.01	N/A

Lyman Memorial High School

	Current	Target (6)
Energy Performance Rating (1)	83	75
Site Energy Intensity (2)	67	75
Source Energy Intensity (3)	124	139
Annual Energy Cost (4)	$166,849	$186,785
Annual Energy Cost/S.F. of Building	$1.43	$1.60

Jonathan Trumbull, Jr. House Museum

	Current	Target (6)
Energy Performance Rating (1)	N/A (5)	75
Site Energy Intensity (2)	71	51
Source Energy Intensity (3)	86	62
Annual Energy Cost (4)	$4,784	$3,429
Annual Energy Cost/S.F. of Building	$1.56	$1.12

Community Center

	Current	Target (6)
Energy Performance Rating (1)	N/A (5)	75
Site Energy Intensity (2)	76	20
Source Energy Intensity (3)	177	46
Annual Energy Cost (4)	$4,767	$1,254
Annual Energy Cost/S.F. of Building	$1.58	$0.42

Town Garage

	Current	Target (6)
Energy Performance Rating (1)	N/A (5)	75
Site Energy Intensity (2)	79	N/A
Source Energy Intensity (3)	80	N/A
Annual Energy Cost (4)	$9,019	N/A
Annual Energy Cost/S.F. of Building	$1.38	N/A

Notes

(1) EPA's **energy performance rating** system rates the performance of buildings on a scale of 1 to 100. The rating compares the relative performance of the building to similar facilities around the US. A rating of 50 signals that the building is in the middle of the peer group – half of similar facilities are more efficient and half are less efficient. A rating of 75 indicates that the building is more efficient than 75% of buildings, performing in the top quartile for the peer group. Buildings that earn a 75 or higher may be eligible to apply for the ENERGY STAR.

The rating is normalized to adjust for weather, operating hours and occupant density. The schools, town and library, for instance, have longer operating hours, the number of computers in use and number of people per square foot of building (the "occupant density").

(2) **Site energy intensity** is the amount of heat and electricity consumed by a building as reflected in utility bills. For Lebanon's buildings, site energy includes the raw fuel that is burned to create heat on-site (i.e., propane and fuel oil) and the energy product created from a raw fuel off-site and delivered to the building (i.e., electricity).

(3) A unit of energy created on-site is not directly comparable with one created off-site because one represents a raw fuel while the other represents a converted fuel. Therefore, in order to assess the relative energy efficiencies of buildings with varying proportions of primary and secondary energy consumption, it is necessary to convert these two types of energy into equivalent units of raw fuel consumed to generate that one unit of energy consumed on-site. The EPA does this conversion to **source energy intensity** by using source-site ratios.

(4) The **annual energy cost** is the total amount paid over the 12 month period ending 11/30/2008 for heating and hot water fuel (oil, electric or propane) and electricity transmission and generation.

(5) Some buildings do have have a rating because they do not meet the operating and energy use conditions of the rating system. This is most common for buildings under 5,000 s.f. that were converted to other uses. For example, the Community Center and the Jonathan Trumbull, Jr. Museum.

(6) The **Target** figures shown are the minimum ratings required by EPA to earn an ENERGY STAR rating. To qualify, a facility must rate in the top 25th percentile for comparable facilities nationwide, which is an energy performance rating of 75 or better. Source: EPA's Portfolio Manager Software, as compiled and input by the Lebanon Energy Task Force Advisory Committee and Siemans Building Technologies, Inc. Definitions are adapted from glossary entries and information provided in Portfolio Manager