

Polesden Lacey Infant School Energy Consultation

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1. Introduction

The purpose of this energy consultation was to discover potential areas of energy reduction and savings within the Polesden Lacey Infant School building. This consultation was conducted using a questionnaire and check list during a walk-through, with supplementary data on past gas and electric usage. Polesden Lacey Infant School is an Eco school and won Sustainable School of the Year 2010 during the Teaching Awards at the London and South East Finals. Due to its current efforts towards carbon efficiency we are only able to provide a few minor suggestions.

The energy consultation, analysis, and report were completed by four American university students, for a project requirement for Worcester Polytechnic Institute. These students are working with the Mole Valley District Council to help reduce the carbon emissions of small and medium enterprises in the Mole Valley.

Notice: While there has been an effort made to ensure that the information contained in this report is accurate, it should be taken into consideration that some of the information may be incomplete, inaccurate, or become out of date. Therefore, Mole Valley District Council, Worcester Polytechnic Institute, and all associated persons do not provide any guarantees on the information provided in the following report.

2. Action Plan

The recommendations listed below are prioritized by payback period and estimated costs. Further explanations of each recommendation are provided.

Priority	Recommendations	Estimated Annual Savings			Estimated Costs (£)	Payback Periods (years)
		(£)	CO ₂ (Kg)	(kWh)		
1	Radiator Efficiency	-	-	-	Minimal	Immediate
2	Boiler Valve Insulation	100	430	2340	500	5
Total		100	430	2340	500	5

3. Current Use and Potential Savings

This is a breakdown of your current costs and what your expected cost may be with these recommendations.

Utility	Energy Consumption		Costs*		CO ₂ Emissions	
	kWh/year	%	£/year	%	CO ₂ (Kg)	%
Electricity	23,696	18	237	5	12,920	81
Gas	107,971.50	82	4,319	95	20,000	19
Total	131,668	100	4,556	100	32,919	100
	Projected Energy Consumption	% Savings	Projected Savings (£/year)	% Savings	Projected CO ₂ Emissions (Kg)	% Savings
	131,238	0.33	4,456	2.2	32,489	1.3

*This is assuming rates of 4p for gas and 10p for electricity. More accurate estimations can be determined with accurate prices.

4. Energy Savings

a. Priority 1: Radiator Efficiency

Make sure that all radiators are unobstructed and kept on appropriate settings. Obstructed radiators are forced to work harder to heat a room resulting in higher energy usage. Also, a radiator that is left on its maximum setting will not turn off, and will over heat a room. Keeping radiators unobstructed and at a setting of 3 to 4 you will save energy and money.

Site Specific Examples:

- In the front entrance the radiator is blocked by chairs and a table. Consider rearranging this area to allow the heating system to work more efficiently.



Figure 1: Chairs and table blocking radiator

- Several radiators throughout the building were set to max. This can cause over heating because the radiator won't shut off when the room is warm. All radiators should be checked and set between three and four at most, to provide the most effective use of the system.

b. Priority 2: Boiler Valve Insulation

The valves on heated pipes can lose heat and cause the system to work harder than necessary. Insulating these valves will increase the efficiency of the heating system and decrease carbon emissions.

Site Specific Examples:

- Consider insulating the valves on all heated pipes in the boiler room. You can do this on your own, buying the insulation, or have a company come in and give you a free quote to have the insulation done professionally. You may also be able to apply for Enhanced Capital Allowance (ECA), which will help pay for some of the insulation through tax breaks. For more information on ECA go to: www.eca.gov.uk/

5. Brief Summary

This building and its occupants are already making great efforts to reduce their energy usage and carbon emissions. The few given suggestions will help to further reduce energy bills. The Polesden Lacey Infant School sets an example in eco awareness which others should follow.