



The Steyning Center

Lighting Health Check



Switched on to Making You Savings

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The Steyning Center

Lighting Health Check

The Green Light Company UK

Our Aim

Is to provide the most suitable lighting solutions for the client that;

- Deliver considerable saving on the clients' electricity costs
- Improve the overall efficiency of their existing system
- Remove the clients' on-going maintenance costs
- Are environmentally friendly
- Improve the overall environment

We help you to reduce your carbon footprint and the obligations you may have as part of CRC.

We specialise in providing our clients with solutions that can be applied to their existing lighting scheme. We work directly with a range of specialist manufacturers to ensure we use the most appropriate and latest technologies in lighting i.e. LED and control systems.

We have developed a structured approach to help businesses achieve their energy efficiency objectives.

- We engage with you to understand your objectives
- We investigate & review your current situation (Health Check)
- We research the options available
- We match the solutions to your specific situation

Scope of Health Check

As part of the “Health Check” we have surveyed all the internal and external areas (where access was possible).

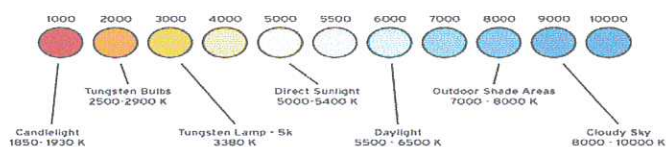
As part of the survey we have detailed all fittings and lamps used in the fittings. This includes the general visual condition of the fitting and diffuser (as viewed from floor level), the use of any lighting controls. We have not assed the electrical installation or internal wiring of the fitting.

The purpose of the Health Check is to

- ✓ Identify the main types of lighting currently used
- ✓ Identify the opportunities for improving efficiency
- ✓ Calculate current costs associated to your lighting
- ✓ Identify budget costs and return on investment of a lighting upgrade project

Some “jargon” useful to understand

- LUX Level – The light levels per square meter.
- Lumens – The light output of a lamp/ luminaire
- Switch Start – Less energy efficient lighting fitting with older magnetic ballast.
- High Frequency – 10% more efficient ballast, than Switch Start fitting
- Kwh – Unit of energy used over period of time
- Maintenance Costs – The calculated cost of maintenance based on
 - Labour rate
 - Market rate for replacement lamps
 - Average annual cost considering rate lamp life and hours of use
- Baseline costs: Combined cost of Energy and Maintenance
- CIBSE: Chartered Institution of Building Services Engineers
- Colour Temperature –
The colour appearance of the light source



The Current Situation

The sites lighting is currently provided by the following categories of lighting

Lamp Type	%
CFL/ Filament lamps	14%
Halogen Lamps	6%
Fluorescent T12	<1%
Fluorescents SS	77%
SON	2%
LED	<1%



- Priority to upgrade
- Recommendation to upgrade
- No action required

Lighting Controls

Lighting controls cover approximately 8% of the sites lighting. They have been integrated into the existing lighting scheme in several areas, mainly in the WCs. These consist mainly of PIR (Passive Infra-Red) movement sensors, with the external covered by Photocells (dusk to dawn).

These PIR sensors are will have limitations in areas where there are objects within the detection area (i.e. toilet cubicles), as they cannot detect movement through objects.

Generally, sensors should be used in applications where the lights would not be ON for more time than they are OFF.

LUX Levels

As a visual indication Lux levels were generally appeared to be adequate in all areas.

Emergency Lighting

The sites benefit from generally having adequate emergency lighting to conform to previous versions of BS5266 but does not conform with the latest standard BS5266-1-2016.

Additional emergency lighting required:

- Saxon room – Exit signage
- Servary lobby and kitchen - Exit signage
- Balcony – Bulkhead lighting
- Loft - Exit signage and Bulkhead lighting
- External from Kitchen exit.

Consideration should be given to fire points (i.e. extinguishers and break glass points)

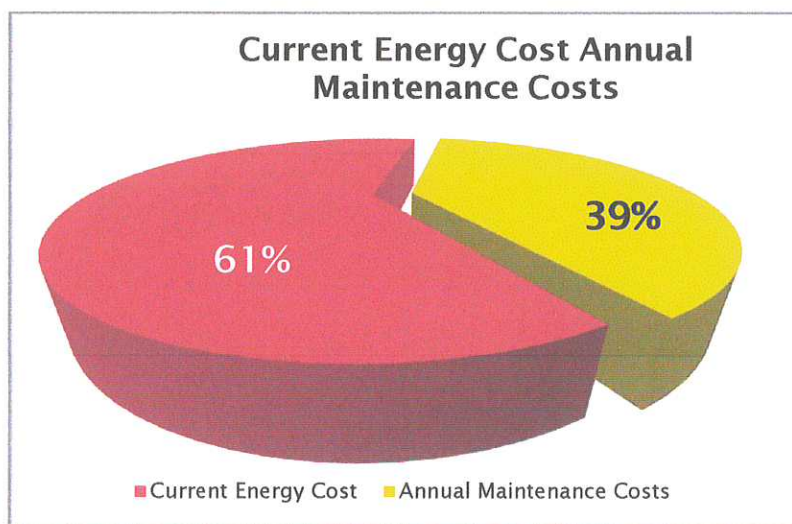
Current estimated annual energy costs for lighting

Calculation is based on the following assumptions:

- Kwh cost: 14.5p
- Lighting operational hours:
 - Circulation areas: 8-10 hours per day 250 days per year.
 - Coombe Court Hall and Saxon Room: 10 hours per day 250 days per year.
 - Kitchen: 6 hours per day 250 days per year.
 - Committee rooms: 6 hours per day 250 days per year.
 - Offices: 9 hours per day 250 days per year.
 - WCs with lighting controls: 3 hours per day 250 days per year.
 - WCs without lighting controls: 10 hours per day 250 days per year.
 - Storerooms/ Balcony: 1-2 hours per day 250 days per year.
 - External: 6 hours per day 365 days per year.
 - External with PIR's: 4 hours per day 365 days per year.
 - LED lighting in the survey areas have not been included in the savings calculations.
 - Twin fittings based on replacing single lamp
- Including in-house labour costs for maintenance of existing lighting
 - Replacement lamps based on average market prices
 - Labour averaged at Low level £5.50 per lamp and high level £35 per lamp

Current Usage

Energy Consumption (Kw)	CO2 (Kg)	Energy Costs	Maintenance Costs	Total Baseline costs
15,342.59	7,313.87	£2,288.05	£1,447.34	£3,735.39



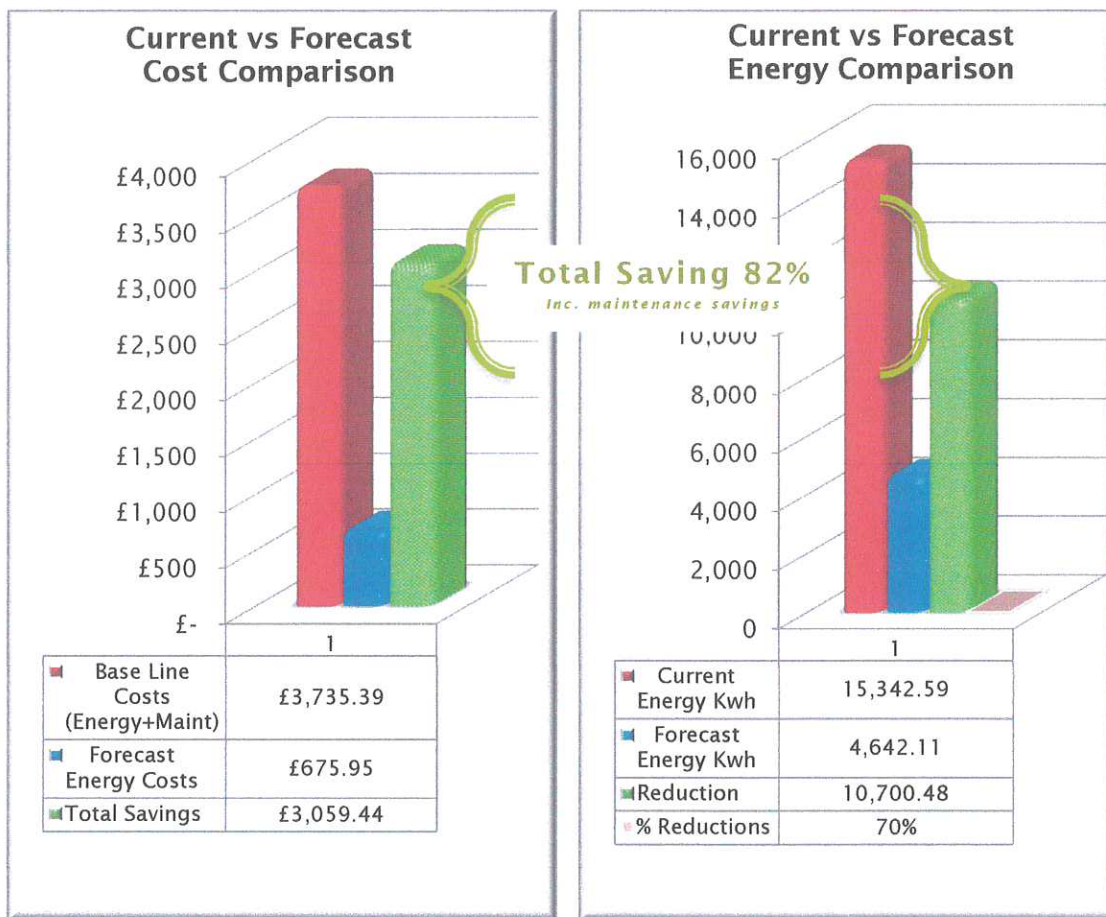
Calculated annual savings

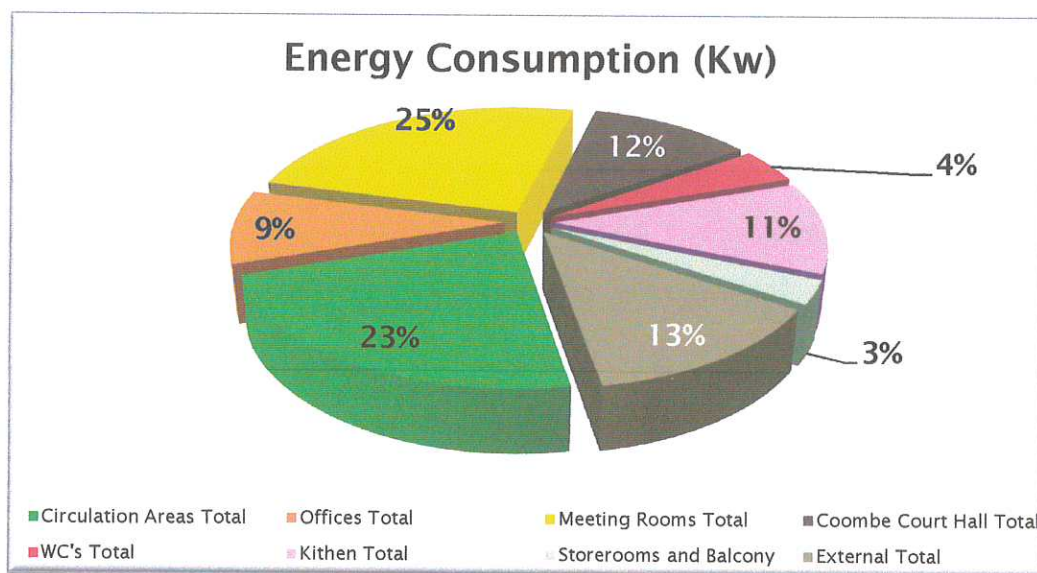
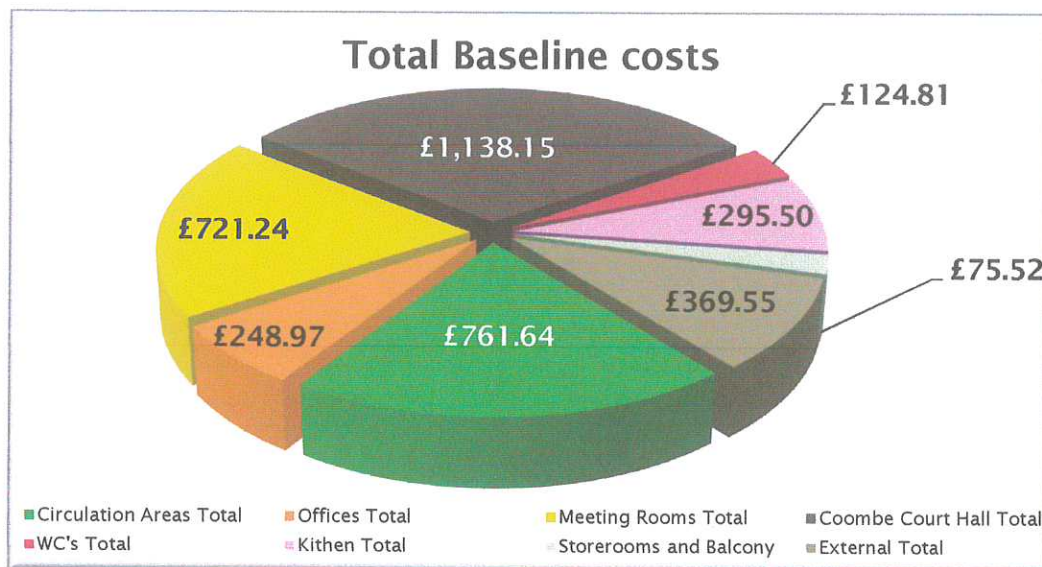
Savings are based on using more energy efficient alternatives

**Baseline costs are combination of costs of consumption (at rates quoted) and maintenance (averaged annually based on the life of lamp). Calculations will be based on 100% of the lighting is working.*

Site Total

	(Kw) Energy Consumption	CO2 (kg)	Annual Energy Cost	Averaged Annual Maintenance Cost	Total Annual Aggregated
Post Install	4,642.11	2,160.72	£675.95	£0.00	£675.95
Savings	10,700.48	5,153.16	£1,612.10	£1,447.34	£3,059.44
	70%			100%	82%



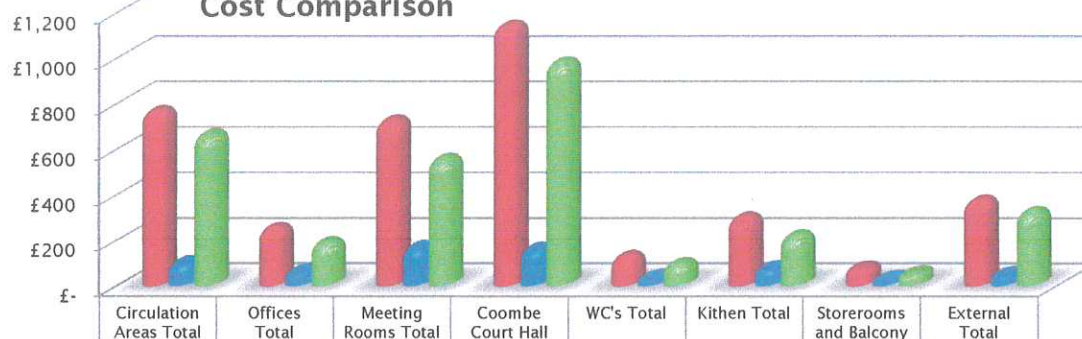


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Breakdown by area

**Current vs Forecast
Cost Comparison**



Base Line Costs (Energy+Maint)	£761.64	£248.97	£721.24	£1,138.15	£124.81	£295.50	£75.52	£369.55
Forecasted Annual Baseline Cost	£100.17	£62.32	£168.01	£161.94	£32.33	£77.93	£24.73	£48.51
Total Savings	£661.47	£186.65	£553.23	£976.21	£92.48	£217.57	£50.79	£321.04

Circulation Areas Total	Energy Consumption (Kw)	CO2 (Kg)	Energy Costs	Maintenance Costs	Total Baseline costs
	3,559.40	1,645.12	£514.65	£246.99	£761.64
Post Install	692.80	320.21	£100.17	£0.00	£100.17
Savings	2,866.60	1,324.91	£414.48	£246.99	£661.47
	81%			100%	87%

Offices Total	Energy Consumption (Kw)	CO2 (Kg)	Energy Costs	Maintenance Costs	Total Baseline costs
	1,443.00	666.94	£208.64	£40.33	£248.97
Post Install	431.00	199.20	£62.32	£0.00	£62.32
Savings	1,012.00	467.74	£146.33	£40.33	£186.65
	70%			100%	75%

Meeting Rooms Total	Energy Consumption (Kw)	CO2 (Kg)	Energy Costs	Maintenance Costs	Total Baseline costs
	3,948.00	1,824.73	£570.84	£150.40	£721.24
Post Install	1,162.00	537.06	£168.01	£0.00	£168.01
Savings	2,786.00	1,287.66	£402.83	£150.40	£553.23
	71%			100%	77%

Coombe Court Hall Total	Energy Consumption (Kw)	CO2 (Kg)	Energy Costs	Maintenance Costs	Total Baseline costs
	1,820.00	841.19	£263.15	£875.00	£1,138.15
Post Install	1,120.00	517.65	£161.94	£0.00	£161.94
Savings	700.00	323.53	£101.21	£875.00	£976.21
	38%			100%	86%

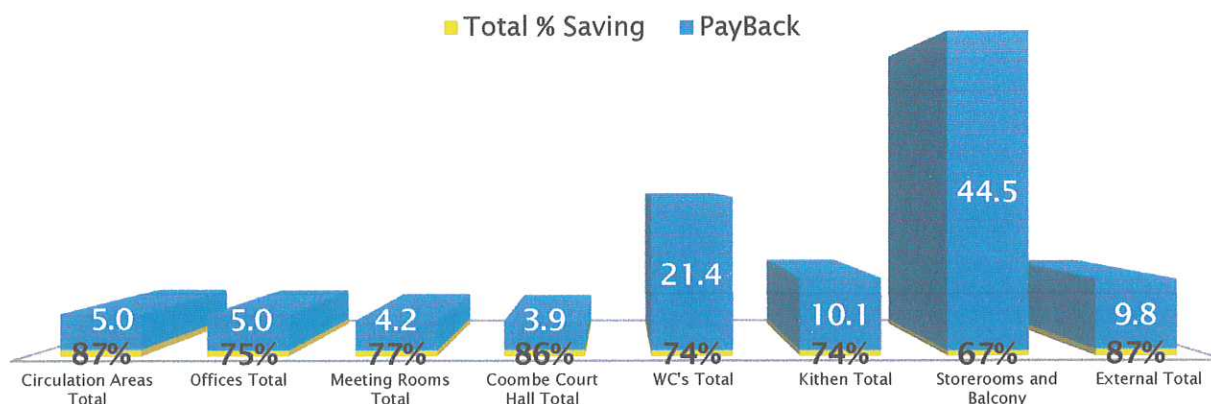
WC's Total	Energy Consumption (Kw)	CO2 (Kg)	Energy Costs	Maintenance Costs	Total Baseline costs
	689.00	318.45	£99.62	£25.19	£124.81
Post Install	223.60	103.35	£32.33	£0.00	£32.33
Savings	465.40	215.10	£67.29	£25.19	£92.48
	68%			100%	74%

Kitchen Total	Energy Consumption (Kw)	CO2 (Kg)	Energy Costs	Maintenance Costs	Total Baseline costs
	1,813.00	837.95	£262.14	£33.36	£295.50
Post Install	539.00	249.12	£77.93	£0.00	£77.93
Savings	1,274.00	588.83	£184.21	£33.36	£217.57
	70%			100%	74%

Storerooms and Balcony	Energy Consumption (Kw)	CO2 (Kg)	Energy Costs	Maintenance Costs	Total Baseline costs
	465.65	215.22	£67.33	£8.19	£75.52
Post Install	171.05	79.06	£24.73	£0.00	£24.73
Savings	294.60	136.16	£42.60	£8.19	£50.79
	63%			100%	67%

External Total	Energy Consumption (Kw)	CO2 (Kg)	Energy Costs	Maintenance Costs	Total Baseline costs
	2,086.34	964.29	£301.66	£67.89	£369.55
Post Install	335.51	155.07	£48.51	£0.00	£48.51
Savings	1,750.83	809.22	£253.15	£67.89	£321.04
	84%			100%	87%

Payback (yrs) vs Total Savings (%)





Outline Scope of works

- Convert existing fittings to LED with retrofit lamp:
 - Foyer with plus sensors
 - Crush Lobby plus sensors
 - Notice Boards
 - Reception Office
 - Clerk's Office
 - Ladies Toilet vanity unit with sensor
 - Cupboards/ storerooms plus sensors
 - Servary Lobby plus sensor
 - Kitchen/ Bar
 - Corridor plus sensors
 - Kitchenette plus sensor
 - Coombe Court Hall
- Replacement fittings with LED.
 - Crush Lobby downlights
 - Toilets (reduce number of fittings)
 - Stairwell
 - Saxon Room (reduce number of fittings)
 - Chair Store plus sensors
- Emergency lighting
 - Replace all fluorescent EM lighting with LED
- Additional Emergency Lighting
 - Saxon room - Exit signage
 - Servary lobby and kitchen - Exit signage
 - Balcony - Bulkhead lighting
 - Loft - Exit signage and Bulkhead lighting
 - External from Kitchen exit.

Budget Costs (including all areas)

- **Retrofit LED options upgrades: £19,970.89**
- **All replacement LED fittings: £28,600.00**

We would recommend a contingency of £500 be held for the project. This has not been included in the above budget.

Budget includes

- Supply of all lighting
- Supply of controls for the areas identified
- Installation
- Access equipment
- Removal of WEEE waste
- Project Management

Total Project Payback

- **Energy savings only: 12 years**
- **Including maintenance savings: 6.5 years**

Variations

Upgrade existing fluorescent lighting to LED: £1,300.00

Additional emergency lighting: £850,00

Conclusion

Analysing at the different types of lighting and the age of that lighting there are some clear opportunities to improve, not only the efficiency of the lighting but also the quality and the LUX levels currently provided.

The priority for the site would be to tackle inefficient lighting. At present **99% (RED)** of the sites lighting would be the priority for an upgrade.

LUX Levels

These were checked in various areas of the building and were found to generally be acceptable. So, no action is required

Lighting Controls

These have been calculated into the budget costs of this project. Where possible these would be incorporated into the fittings, to reduce the cost. It should be noted that where lighting controls are introduced a 60% reduction in consumption during normal hours.

Emergency Lighting

While generally this meets previous BS5266 standards we would recommend areas being upgraded to recent standards. Along with this we would suggest replacing existing fluorescent fittings with LED equivalent.

Next Steps

There are some very clear opportunities for reducing costs and recovering the investment within an acceptable time frame. We would recommend a structured approach to reducing the running costs of lighting by taking the following steps:

- Approval in principle this is a project that would support.
- Agree final scope of works i.e. by area/ lamp type
- Prepare product specifications
- Formal costs proposal to include lighting controls for selected contractors
- Project approval
- Explore funding options
- Project implementation

The Green Light Company UK - References and guarantees

References are available from the following independent authorities:

East Sussex County Council schools lighting framework 2018 – 2020

- Completed School Projects: Newick and Herstmonceux

Wealden District Council

Carillion PLC 2017

Plumpton College 2016

Amicus Horizon Housing Association 2016

Surrey County Council 2014

We fully consider all aspects of a project, (including automatic controls) in line with HSE/CIBSE recommended lighting levels. Appropriate lighting levels, measured in lux metre readings, are absolutely essential in a learning environment.

We have an independent consultant – a professional chartered surveyor – available to provide an unbiased verification of our survey at the principal's request. Initial surveys and estimates are carried out at no cost.

We offer guarantees on all installation work (2 years as standard) in addition to manufacturers guarantees (most offer 5 years depending on the product & spec and some with extended warranties).

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If you have any further queries, then please do get in touch.

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This document has been produced from the data and information provided by the client, or its agents. While all reasonable steps have been taken to ensure accuracy, it will be necessary to conduct a full survey of the site, to establish the exact nature of the lighting and required lighting before confirming any final figures. All costs contained within this report are estimates and in no way constitute a formal offer to the client. Final costs will be produced once all necessary information has been obtained, specifically any installation and shut down requirements.