

14. SUSTAINABILITY AND ENVIRONMENTAL MANAGEMENT

Schools Annual Environmental Management Report

The Council provides an annual Environmental Management Report for all schools which measures and benchmarks environmental performance under:

- Energy
- Water
- Waste and Recycling
- Transport

[Schools Annual Environmental Management Report](#)

Sustainability

Sustainability and Climate Change are now key policy issues that impact on operation and management of premises. This is especially true as regards schools, where there is also an opportunity both to set an example to future citizens and to use the building as a curriculum tool.

New Council buildings will reflect this more and more in their briefs, budgets, design and construction. Their potential cannot be achieved unless they are operated and managed in the appropriate manner. This applies also to refurbishments and extensions to existing buildings, plus replacement plans such as boilers, heating, controls etc which may be highlighted in the School's Condition and other surveys supplied by the Local Authority.

When new plant or equipment is installed in a school building, the installer should demonstrate its correct use to the site manager and provide an instruction manual. If the new plant or equipment is to be controlled by teachers and/or pupils, it is important that the site manager instructs them in its correct use and monitors this periodically.

It is not just building fabric, but surface finishes (e.g. paints and plaster), fittings and furnishings, ground maintenance and use of chemicals that all have an important environmental impact via their manufacture, application, disposal etc. These should be chosen with sustainability in mind.

Sustainability and Environmental Education (SEEd) is a registered charity that identifies, promotes, enables and supports environmental education and education for sustainable development in the UK. Resources for sustainable schools can be found on their website: <http://se-ed.co.uk/edu/>

ECO Schools

The Eco-Schools programme provides a simple accredited management framework to enable schools to analyse their operations and become more sustainable. It guides schools through examination of their environmental impact across a wide range of issues including energy, waste, transport etc. The scheme encourages children and young people to become more effective citizens taking responsibility for the future of their own environment. At the same time the school can make financial savings through reducing resource consumption and therefore its utility bills.

The Council is keen to support local schools on the Eco-Schools programme as it can be an effective way of combining good utility management with environmental education. Officers from across the Council are available to offer support to schools on the Eco-Schools programme on the 9 topics within the programme; these include energy, biodiversity, healthy living, litter, school grounds etc.

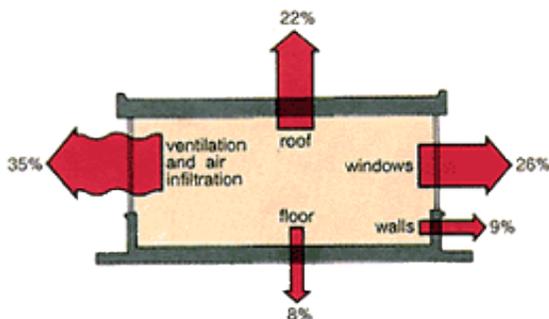
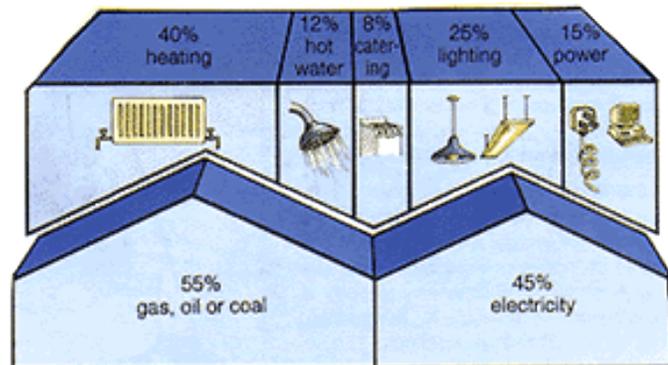
[Schools Annual Environmental Management Report](#)

[Eco Schools](#)

Energy

Schools spend three times more on energy than books! Most schools could save at least 10% through low cost/no cost energy efficiency measures - £500 for primary and as much as £4,000 for Secondary schools every year!

Here is a breakdown of where energy is used in a typical school (average split between costs of fuels)



Most of the heat generated in schools is lost through:
 The building fabric (walls, windows, roofs, and floors)
 Drafts
 Ventilation
 Degradation of tank pipe lagging
 Breakdown of heat recovery units i.e. from School Swimming Pool
 Schools should have energy and water included in

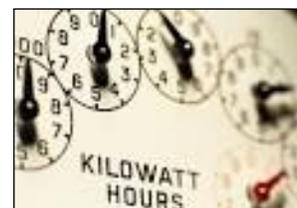
their Energy Management Policy Statement for their buildings in order to raise the profile within the school.

Money Saving Tips

Check energy and water use against the following yardsticks: -

PRIMARY SCHOOL	Low Consumption	< 157 kWh/sq. m
	High Consumption	> 216 kWh/sq. m
SECONDARY SCHOOL (NO POOL)	Low Consumption	< 173 kWh/sq. m
	High Consumption	> 235 kWh/sq. m
SECONDARY SCHOOL (WITH POOL)	Low Consumption	< 198 kWh/Sq. m
	High Consumption	> 254 kWh/Sq. m
WATER CONSUMPTION	Should be < 5,000 litres/pupil/annum	

- Conduct an 'energy walk-round' to see where the energy is lost in the school. An 'energy walk-round' is a simple tour of inspection, make a systematic visual inspection of each room and circulation area in turn, noting down where:-
 - energy is being wasted (i.e. good housekeeping practices are not being followed)
 - repair or maintenance work is needed (to reduce energy costs)
 - there is a need for capital investment (to improve energy efficiency)
- In conjunction with the caretaking staff, look for obvious areas of waste and prepare a list of items needing servicing, repairing or replacement.
- Maintain contact with the Local Authority, the technical staff for energy advice, and Education Capital and Property for prompt repairs and maintenance.
- Encourage energy awareness amongst staff and students/ pupils e.g. school projects.
- Ensure that boilers are working at optimum efficiency. Regularly check the operation of time clocks, thermostats and control valves.
- Minimise the number of lights left on when the school is being cleaned.
- Turn off lights when exiting rooms.
- Close windows.
- Keep a check on room temperatures; reducing the temperature by 1 degree can save up to 10% on fuel bills.
- Check that the heating system does not come on when the school is unoccupied, e.g. weekends and holidays. (N.B. Make provision for frost protection in very cold weather).
- Ensure that the site controller/ caretaker understand how the heating controls work and can reset them as required.



- Discourage the use of portable electric heaters; they can be a very expensive form of heating.
- Check that rooms don't suffer from overheating. An increase of only 1 degree C in a room's temperature will increase its heating by 6-10%.
- Tungsten filament lamps should be replaced with compact fluorescent lamps, which will save 80% of the running cost of the light. Light emitting diodes (LEDs) are now a viable alternative which halve the running costs of CFLs and last five times longer, thereby reducing maintenance costs.
- If buildings are heated above 19°C, costs rise by about 8% for every 1°C of overheating.
- Ensure external doors, windows and roofs are maintained and fitted correctly. Drafts from doors and windows prompt occupants to raise room temperatures to compensate.
- As schools manage their energy and water budgets they will reap the benefits of reducing energy and water consumption.

[Sample Energy Management Policy Statement](#)

Heating

DfE [Advice on Standards for School Premises \(2013\)](#) does not specify minimum or maximum heating temperatures.

Health, safety & welfare (page 8) requires school premises to be maintained to a standard such that, so far as is reasonably practicable, the health, safety and welfare of pupils are ensured.

Display Energy Certificates

From 2013 all school buildings over 500 square metres of useful floor area are required to have a Display Energy Certificate and an Advisory Report. The Certificate is to be renewed on an annual basis for buildings over 1,000 square metres but the advisory report is only required every seven years

Further information and the latest Environmental Management Report can be found on the Bracknell Forest Council website:

[Schools Annual Environmental Management Report](#)

Carbon Management

In April 2010 all Bracknell Forest schools were included in the Carbon Reduction Commitment (CRC) energy efficiency scheme through the local authority. The CRC was initially designed as a “cap and trade” scheme but was later changed to carbon tax of £12 per tonne of carbon dioxide emitted.

In December 2012 the Government simplified the CRC and withdrew all state funded schools in England from CRC participation from April 2014. The Government will implement “alternative robust measures” that will incentivise and support schools to obtain both energy cost and emission savings.

In the meantime, schools should consider allocating a budget for low cost energy efficiency measures in accordance with their Schools Energy Management Policy Statement.



Renewable Energy

In April 2010 the Government introduced a system of feed-in tariffs (FITs) to encourage the installation of renewable electricity technologies. This was followed in 2011 by the Renewable Heat Incentive (RHI) for renewable heat technologies.

Both schemes offer an attractive rate of return on investment in eligible renewable energy technologies through guaranteed, index linked payments over the life of the tariff (20 years for solar PV).

The feasibility of installing renewable energy technologies will be routinely considered for new school buildings and when boilers need replacement. Schools should also consider the benefits of installing renewable energy technologies when funding is available.

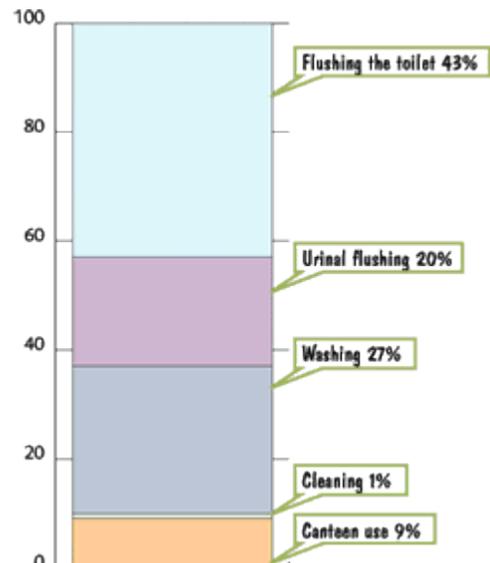
WATER

A large secondary school can spend as much as £20,000.

Careful water management together with an effective education programme can reduce water use by two-thirds. This could save a school of 600 pupils around £5,000 every year.

Here is a break down of where water is used in a typical school (average split) and a few facts:

- Over one third of the water we use at home goes down the toilet; this increases to two thirds in schools for toilet and urinal flushing.
- A running tap can use up to 9 litres of water a minute.



- A dripping tap can waste up to 30 litres of water a day.
- A bath uses up to 80 litres of water and a shower 35 litres of water.
- A power shower (one with a pump) can use almost the same amount of water as a bath.
- A washing machine uses up to 80 litres of water per cycle whether it is full or not, and a dishwasher between 22 and 35 litres per cycle.
- Garden sprinklers use an enormous amount of water, up to 1,000 litres per hour which is equivalent of two days' water consumption by a family of four.

Water saving checklist

Use the checklist below to identify any ways to save water.

- Are there old screw taps?

Taps left running can waste enormous amounts of water. Consider replacing conventional screw taps with percussion taps that close automatically after a preset period of between 1 and 30 seconds. Some models also have an adjustable flow rate restrictor which can be set to deliver a lower flow rate than conventional taps. Self-closing taps need to be inspected and maintained regularly.

- Do the urinals in the boys' toilets flush all the time - even when school is closed?
- Do Cistermiser batteries need replacing?

An uncontrolled urinal with a 9 litre cistern flushing every 15 minutes can use over 315,000 litres of water per year.

- Are any of the taps in the cloakroom dripping or overflows running? If yes, can the washers be replaced or overflow fixed?
- Are there "Save water" stickers fixed above the hand basins?

The School's water company should be able to provide water saving educational material such as leaflets, stickers etc.

- Does the canteen always use the dishwasher/ washing machine fully loaded?
- Are the plugs always put in the sink when washing vegetables?
- How old are the toilets?

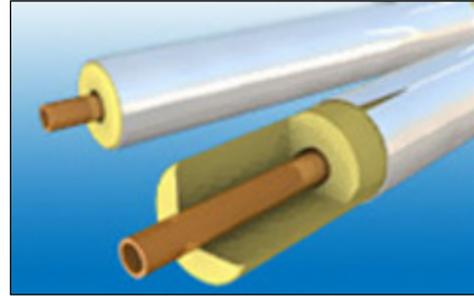
Installing water dams and displacement devices in WCs acts as a water displacement device and reduces the water consumption required for flushing for old toilets. It is, however, important to ensure that there is sufficient water to remove all soils. If there is scheduled refurbishment, consider replacing nine-litre flush toilets with dual flush toilets with three- and six-litre flushes, this can save up to half the water used for WC flushing.

- How are the ball valves and overflows?
- How much water is used in the school swimming pool and/or on the playing field?

Swimming pools should not be drained and refilled more than necessary, although sufficient filter backwashing and dilution must be carried out for hygiene purposes. Discharges of swimming pool water should qualify for a discount against normal effluent charges. Headteachers might also get a reduction in sewerage charges for water loss through pool evaporation. If a significant amount of water for watering playing fields is used, it can be

arranged for the supply of this water to come from a separate meter so that there is no longer a need to pay the normal sewerage charges. The school's water company will be able give advice.

- Are the water pipes properly lagged to prevent them freezing in cold weather?
- Are the pipes properly maintained?



Adequate frost protection is vital to prevent burst pipes and leaks. Caretaking staff should always visit the school when frost is expected, especially during weekends and holidays. Be especially careful to protect incoming cold

water mains from frost. Cold water tanks should be insulated, pipework lagged and clustered together to reduce the risk of freezing. An outside thermostat should be used to start all heating and hot water pumps and an internal thermostat in a normally heated room should turn on the boilers and heating when necessary.

- Does the school use a water sprinkler? What can be used instead?
- How much water is used on the school grounds?

Over-watering lawns encourages surface rooting and susceptibility to drought damage. A good soaking once a week is better than a daily light sprinkling; the latter will not penetrate the roots and will encourage fine roots to grow near the surface where they will perish as soon as the lawn dries out. Watering is best carried out first thing in the morning or in the cool of the evening.

The most efficient way to protect a lawn in dry periods is to adjust the height of the mower blades to 4cm to encourage dense growth that allows the morning dew to be trapped. Cut lawns less frequently during dry weather and leave the cuttings on the lawn – it will return moisture and nutrients to the soil. Lawns may turn brown during the summer but they will 'green' up over the wetter autumn or winter months.



- Is water conserved on the grounds?

Water butts collect rainwater from downpipes such as building guttering. It is worth considering installing water butts. In any one year, 3,600,000 litres of rain falls on to a typical primary school roof (4000 square metres) – enough to fill almost 19,000 water butts! Water butts usually cost around £25 to £35 each, but many water companies will offer subsidised butts for sale.

If organic mulch is applied around plants and on borders water will be conserved by reducing surface evaporation and keeping down competition from weeds and other plants. Used tea leaves or tea bags make good mulch – roses in particular like cold tea. On free draining soils, mix in organic matter to improve water retention. On heavy soils, incorporate a mixture of organic matter and sharp sand or grit. This will open up the structure, improve water retention, and reduce the chances of clay soils cracking during a dry summer.

Utilities

Bracknell Forest Council provides a centralised energy procurement service for all Council buildings and Schools.

Gas and electricity are purchased through Government Procurement Service (GPS) framework agreements. Heating oil is purchased through a mini competition under a Pro 5 Framework Agreement.

Energy supply contracts from 1 April 2012 are:

- Gas (mains) – Corona Energy
- Half-hourly electricity (large sites) – EDF
- Non half-hourly electricity (small sites) and unmetered (street lighting) – British Gas
- Heating oil – Pace (GB Oils)

The Council's Energy Manager provides the following services to schools:

- Managing energy supply contracts
- Providing technical assistance and energy efficiency advice to site personnel
- Controlling comfort levels via remote building energy management systems
- Maintaining an energy database for all sites
- Statutory and management reporting

[Systems-Link](#) energy management software is available to all schools via a password supplied by the Council's Energy Manager. This enables site staff to enter month-end meter readings for billing purposes and to view electronic invoices. Sites can also view various graphs and reports enabling them to monitor their consumption and improve their energy efficiency.



Since 2010, automatic meter readers (AMRs) have been fitted to school gas and electricity meters over a £3k p.a. consumption threshold. This removes the need to enter meter readings into Systems-Link software, thereby eliminating human error and estimated readings from the billing system.

The Council's Energy Manager can arrange for automatic meter readers to be installed on additional gas and electricity meters at a cost of approximately £300 plus a £50 p.a. data collection charge.

Climate Change

It is now widely accepted that human emissions of green house gasses are responsible for world wide climate change. The UK Climate Projections (UKCP09) predict that S.E. England will have warmer, drier summers; milder, wetter winters and increased storminess as we progress through the 21st century.

Policy responses to climate change address both mitigation and adaptation measures. Mitigation entails reducing emissions of greenhouse gasses into the atmosphere, mainly by reducing our use of fossil fuels. Adaptation entails preparing for the impacts of climate change that have already been set in motion by our past emissions.

Schools can help to mitigate climate change by improving their energy efficiency and installing low carbon and renewable energy technologies. They can also encourage sustainable travel choices; reduce water consumption; reduce waste sent to landfill; and provide environmental education to their students.

Adaptation may require planting shade trees and drought tolerant plants to deal with summer heatwaves and droughts. It may also require ensuring that drains and watercourses are kept clear of obstructions to reduce the risk of flash flooding. Schools may have to avoid sporting activities in the hottest part of the day and ensure that precautions are taken against sun burn and dehydration.

While new schools will be designed and built to deal with climate change, older schools will have to adapt their buildings as the climate changes. These adaptations should be considered at every opportunity to spread the cost over normal maintenance and budget cycles, rather than waiting for a climate change crisis to trigger a major refurbishment.

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