

WATER EFFICIENCY PACK

small changes big savings

SCHOOLS

JANUARY 2004



How to use the pack

This pack offers easy to follow advice for reducing water use within a typical school. The typical school water consumption in the UK is around 4,000 litres per pupil per year. By following this audit and implementing the recommendations we are confident your school could lower its water consumption significantly.

The case study from a project at Chesswood Middle School in Worthing, completed in April 2000, demonstrates what can be achieved. The project was run jointly by Southern Water, West Sussex County Council and the Environment Agency and identified cost effective, retrofit measures that other schools could easily adopt. Chesswood School reduced its water consumption by almost three quarters, saving about £3,000 a year, with a payback period of just over one year, and reduced its annual per pupil consumption from 5,700 to just over 1,500 litres.

The Chesswood School project served to develop this self-audit checklist and we are hoping that their experiences will help you to improve water efficiency in your school. A copy of the Chesswood School case study is available to download from www.southernwater.co.uk. Although the benefits realised at Chesswood School may not be as significant at all locations, we are confident that by following the water audits and completing the actions arising many schools will see tangible benefits.

Section one of this booklet, the water audit checklist, is designed to help you identify water wastage and to record actions. Section two contains the list of water efficiency product to assist you in choosing the most effective ways of saving water and money. Useful contacts are listed in Section 3. If you have difficulties with completing the audit, or need further help, do contact us.

We hope that you take the opportunity to complete a water audit of your school, remembering that reduced water consumption will result in financial savings for the school, and benefit the environment at the same time.

SECTION 1: Water audit checklist

Checking for underground pipe leaks

(i) Locate your meter(s) and internal stop tap(s).

The meter is normally located in the footpath. If you have difficulties locating it, please contact us - see section 3 for details.

Action/Comments:

(ii) Close the internal stop tap(s).

The stop tap is normally positioned where the service pipe enters the building.

Action/Comments:

(iii) Is the meter now stationary?

If yes, there is no leakage in the pipework between the meter and the stop tap.
If no, Southern Water provides free leak detection services. Please contact us for details.

Action/Comments:

Using the meter to check for internal plumbing leaks

(i) Open the internal stop tap during a period of no water use and check the meter. Is the meter stationary?

If yes, there is no internal leakage. For a more sensitive test check overnight water use. If no, check internal pipework, appliances and fittings for leaks or water wastage.

Action/Comments:

Meter reading/accounts records

(i) **Do you compare your water account with previous periods to check for abnormal water consumption?**

It is advisable to do so – an increasing consumption may indicate a leak. Check your account to ensure there are no unexplained increases.

Action/Comments:

(ii) **Is your consumption what you would expect for the size and nature of your school?**

The typical use in the UK is around 4,000 litres/pupil/year. How does your consumption compare with this figure?

DfES benchmarks for schools without swimming pools (about 15% more with a pool)

Typical water use 3.8 m³/pupil/year

Best practice benchmark 2.7 m³/pupil/year

Action/Comments:

(iii) **Do you read your meter regularly?**

Regular readings over a period of time can quickly show a trend which may indicate the presence of a leak.

Action/Comments:

Assessing plumbing appliances / fittings for water efficiency

The Water Technology List is a Government initiative aimed at businesses that can benefit from the tax relief, but it's also a useful reference for organisations such as schools. It provides a useful list of products that meet carefully formulated criteria for performance and water efficiency. Call the Environment and Energy Helpline on **0800 585794** or visit **www.eca-water.gov.uk**

(i) Are the urinals fitted with water efficient controls?

Automatic flushing of urinals when they have not been used is one of the largest wastes of water and one of the cheapest to stop. Chesswood School saved over 60% of the total water use by fitting passive infra-red controls, which paid for themselves within a few months. If controllers are fitted it is important to check that they are operating correctly and that the water use is as specified in the Water Supply (Water Fittings) Regulation 1999.

There are also several waterless urinals now on the market, which may provide a suitable alternative.

Action/Comments:

(ii) Are the WC cisterns operating efficiently?

Check the level in the cistern is correctly adjusted. Check warning pipes regularly for overflows. Try fitting cistern displacement devices, such as Save-a-flush bags, free from Southern Water to all our supply customers.

If you are thinking of refurbishing your washrooms, consider replacing existing toilets with water efficient models. The Water Technology List (www.eca-water.gov.uk) contains only approved WCs with an effective flush of 4.5 litres or less.

Please refer to Water Supply (Water Fittings) Regulations 1999 for requirements. Our Water Regulations Inspectors will be happy to advise or visit www.southernwater.co.uk

Action/Comments:

(iii) Are all taps drip free?

Dripping taps can waste large volumes of water. Renew all washers as soon as the drip is noticed. Otherwise it only gets worse, wasting more money and water.

Action/Comments:

(iv) Do pupils sometimes leave taps running?

You can retro-fit self-closing taps to prevent waste. These can be adjusted to the required duration. Many models have in-built flow restrictors that can further reduce waste – 6 litres/minute is plenty. Spray taps save even more water and energy. Good quality sprays and flow adjusted to under 2 litres per minute gives good performance without splashing. For a cost effective option, consider water efficient inserts to existing taps. When installing new taps choose good quality models with standard metric outlets to allow a full choice of sprays or aerators to be fitted.

Action/Comments:

(v) Are plugs fitted in the basins?

Replace plugs where missing or defective unless the basin is fitted with spray taps. Captive plugs encourage users to fill the basin, rather than use running water, and are difficult to vandalise.

Action/Comments:

(vi) Classroom/laboratory sinks

Replace plugs where missing or defective. Standing plugs provide automatic overflows and are therefore a safer option. Provide bowls to reduce water wastage. Consider fitting in-line isolating valves that make maintenance easier and reduce water flow.

Action/Comments:

(vii) Showers

Where showers are used frequently, push button controls, proximity sensors or time mechanisms help reduce waste. Low flow showerheads reduce the flow to below 9 litres/minute helping to make further savings.

Action/Comments:

Internal pipework

(i) Are the pipes unnecessarily long?

Long pipe runs to hot water taps or showers allow heated water to cool and this is often run to waste as users wait for hot water to come through. To save water and energy consider rationalising the pipework or installing point-of-use heaters.

Check that pipes are efficiently lagged to prevent bursts and heat losses.

Action/Comments:

Grounds/gardens

(i) Is there a water use associated with garden/grounds maintenance?

Water butts provide a cheap way to collect and use rainwater which is better for plants than tap water. Organic mulch reduces water loss and suppresses weeds. For landscaped areas choose plants that don't need watering. There are many examples of drought resistant plants, which make the garden look good, but do not require much water. For more information on water efficient gardening see www.southernwater.co.uk or ring **0845 278 0845** for a leaflet.

For further ideas visit our water efficient gardens at Bewl Water Visitor Centre in Kent, Testwood Lakes near Southampton or at Brinsbury Campus, Chichester College in West Sussex.

Action/Comments:

(ii) Are damp patches visible in the grounds?

Unusual damp patches may indicate an underground leak. Southern Water provides free help with leak detection. Please see contact list at the end of this booklet. Early warning devices for leak detection are available and can be fitted to pulsed output meters.

Action/Comments:

Catering facilities

Is there a canteen/kitchen in the school?

Consider how water is used and where it could be saved.

When replacing appliances choose water efficient models. Refer to manufacturers' data or Consumer Association literature (Which? magazine) for details. If the canteen is contracted out, consider charging the contractor for water used to encourage efficiency.

Action/Comments:

Good housekeeping

Are staff and pupils aware of the need to conserve water? Try to encourage all members of the school to be water wise both at school and at home:

- Set targets for unit consumption and review periodically.
- Appoint a water efficiency champion.
- Use posters and regular assembly talks to keep the message fresh.
- Refer to water conservation when discussing water as part of the curriculum.
- Southern Water has educational resources available - please see our website, www.southernwater.co.uk
- The Water Companies Education Group, Water UK, has developed www.waterintheschool.co.uk which links water conservation in the school with National Curriculum requirements for Maths, IT Citizenship and Key Skills.

Action/Comments:

Finally...

Southern Water can help your school with practical improvements - please see Section 3 for contact details.

Please remember that all new water fittings must comply with Water Supply (Water Fittings) Regulations 1999. For more information visit www.southernwater.co.uk

SECTION 2: Improvement products list

We can help with purchase, fitting and maintenance of these devices and give advice on the likely water and financial savings. Please see Section 3 for contact details.

1. URINAL CONTROLS

Constantly flushing urinals are potentially the highest water wasters in the school. Infra-red controls are easy to install and mean that the urinals only flush when needed, often saving more than half of school's water consumption.

2. WATERLESS URINALS

These don't use any water at all, but often rely on special deodorising inserts, which have to be changed periodically. They can be cost effective in areas of high use, but check the ongoing maintenance cost.

3. WATER EFFICIENT TOILETS

All new toilets now have to flush with no more than 6 litres, so they are more efficient than the older, 9 or 7 litre cistern installed in most schools. See the Water Technology List for approved WCs using 4.5 litres or less or visit www.eca-water.gov.uk

4. PUSH TOP TAPS

Also known as percussion taps, these taps can be adjusted to the required duration – 6 seconds is usually enough. After this time they close, eliminating the risk of flooding from turned on taps. These taps often contain a flow restricting device, which reduced unnecessarily high flows – 6 litres/minute is ample for washing hands or less than 2 litres/minute for spray taps. Push top taps can be supplied as cost-effective retrofit kits, which simply fit onto the existing tap body, and often can be installed without disturbing the pipework connections.

5. TAP INSERTS

These can be fitted to the existing taps to change the flow pattern to spray and reduce the volume of water used. They provide a cost effective way of reducing consumption, but may not be suitable for some taps.

6. FLOW RESTRICTING VALVES

These valves can be fitted to the pipes supplying the basin taps and easily adjusted to the required flow. They also serve as isolating valves, enabling the tap maintenance without having to turn off the whole water supply.

7. SHOWER PUSH BUTTON CONTROLS

Push button controls limit the flow from the shower to the duration required, and therefore reduce unnecessary waste.

8. SHOWER FLOW RESTRICTION

Low flow, high velocity showers use water more efficiently. There are showerheads available that reduce flow to below 9 litres/minute, but still give a good performance. Alternatively suitable flow regulators are available at low cost.

9. WATER BUTTS

For a school with a garden, water butts can significantly reduce summer water use and also serve as a good example of water efficiency for pupils.

SECTION 3: Useful contacts

SOUTHERN WATER

Water Efficiency Team
Southern House
Yeoman Road
Worthing
BN13 3NX
Tel: 0845 278 0845
e-mail: customerservices@southernwater.co.uk
www.southernwater.co.uk

Help with on-site water audits and installations of water efficiency products; advice on water efficiency and Water Regulations; free Save-a-flush bags; educational resources

ENVIRONMENT AGENCY

Guildbourne House
Chatsworth Road
Worthing
BN11 1LD
Tel: 01903 832 000
www.environment-agency.gov.uk

Advice and publications on water efficiency including educational resources; conserving water in buildings, fact cards and comprehensive suppliers list.

ECO-SCHOOLS

Elizabeth House
The Pier
Wigan
WN3 4EX
www.eco-schools.org.uk

Europe-wide programme and award scheme to integrate environmental awareness and sustainability into school ethos.

WATER TECHNOLOGY LIST (WTL)

www.eca-water.gov.uk or call the Environment and Energy Helpline on 0800 585794.

Although aimed at businesses who can benefit from the Enhanced Capital Allowance, the WTL provides a useful source of certified water efficient products.

WATERMARK

www.watermark.gov.uk

An initiative of the Office of Government Commerce to establish benchmarks for water consumption across the public sector.

GLOBAL ACTION PLAN

8 Fulwood Place London WC1V 6HG

Tel: (020) 7405 5633 Fax: (020) 7831 6244

Email: all@globalactionplan.org.uk

www.globalactionplan.org.uk/aboutus/atschool.htm

Other useful websites for schools and teachers:

WATER AID

www.wateraid.org.uk/site/learn_zone

WATER IN THE SCHOOL

www.waterintheschool.co.uk

DEPARTMENT FOR EDUCATION AND SKILLS (DFES)

www.dfes.gov.uk

LOCAL AUTHORITIES

Your Local Authority may also be able to provide further information and help – please contact their Property Services or Environment Department for details.

If you would like any further information, please contact:

Customer Service Centre

Southern Water
Southern House
Yeoman Road
Worthing BN13 3NX

Telephone:

0845 278 0845

www.southernwater.co.uk

