

SPACE HEATING

Between 50-70% of the energy use in schools is for space heating. Space heating is usually from a central boiler house which provides heat to radiators. In temporary accommodation, electric storage heaters or electric convectors may also be used. In rooms where, due to a lack of maintenance, existing radiators may have become less effective due to air locks etc, plug in electric heaters may be in use. There are plenty of ways to save money whilst reducing heating energy use and maintaining comfort.

Top tips

- Read the gas/oil meter regularly
- Keep track of fuel bills or your fuel meter if you have one.
- Ensure staff members know how to use thermostats and thermostatic radiator valves.
- Talk to staff to find out which areas are too hot or too cold.
- Make sure your time clocks are 7 day timeclocks and are set to the correct time with correct on-off times.
- Eliminate local electric heaters by repairing the main heating system.
- Consider replacing your boiler if it is more than 20 years old. Old boilers can have a seasonal efficiency as low as 60%. New boilers can have a seasonal efficiency as high as 90%.

No cost measures

Prepare an energy management plan. An energy management plan will allow you to set targets for energy consumption against previous consumption figures. Get the students involved as well to promote energy awareness. Download the Energy in Education Guide, workbook and student energy logbook at www.energyineducation.ie.

- Keep close track of fuel use. If you use natural gas, read the meter monthly and phone the readings into the gas company (see your gas bill) to avoid over or under-charging. The gas company will typically only read the meter 3 times per year.
- Track your fuel use on a spreadsheet available from www.energyineducation.ie. Electricity can also be tracked.

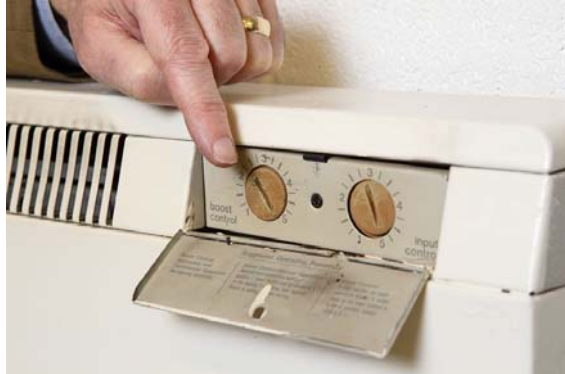
- Close doors and windows. Ensure all windows are closed at the end of each day to retain heat for the following day. This is especially important during weekends and holidays. Make sure someone is responsible for closing windows in each room.
- Time switches - Ensure time switches are set to the correct time of day and are 7 day time switches. A 7-day time switch is one which can be set to different on/off times for each day of the week. Remember to update them twice every year with the shift from summer to winter time and back.



- Are thermostats fitted? Do they work? They should be set to 18 degrees.



- If you have thermostatic radiator valves (TRV), don't use them as on/off switches. Adjust them to a mid-position and if you are too hot or cold, only adjust them a small amount. Do not turn the TRV off, because the following morning the room will not be able to heat up. It is not practical for caretakers to go around a school daily checking TRVs in offices. Note: TRVs are not recommended for rooms used by students, as they can be accessed and the controls adjusted.



- Experiment with switch-on/off times for heating to see if later start and earlier stop times are possible. Has the school had new wall or attic insulation fitted recently and have the times been adjusted to take account of this? Is the weather milder now, such that the boilers come on later?
- Does the school principal or caretaker know how to use the central heating system, change times etc?



- Do you need a manual for your storage heater or time clock? Missing manuals can often easily be found on the internet or are available from the manufacturers. Just look for the make and model of on the unit, and search on the internet for these, plus "manual" and "PDF". Most schools would have been provided with Operation and Maintenance Manuals when they were built (commonly now included in Health and Safety files). Do you know where these are, and has anyone looked at them, especially the first few pages?
- Do all radiators work properly? Are some radiators on all of the time or off all of the time? Are local electric heaters being used to compensate for faulty radiators



Avoid using electric radiators

- Radiators which always remain cold at the top are probably air locked, and can easily have the air bled off. The school should be able to do this themselves. A plumbing wholesaler will be able to supply a suitable bleed valve key. The bleed valve is at the top of the radiator.
- Turn down the radiators in the corridors and toilets to low setting. These are areas of low occupancy so temperatures can often be reduced without causing discomfort. Monitor fuel bills for reductions.

Low cost measures

- Radiators which remain cold in the middle of the bottom may be silted up. A plumber should be asked to come in during the summer to flush out radiators so they work properly.



Repair damaged insulation

- Repair or replace missing insulation. Repairing / replacing missing pipe insulation has a payback of around one year.

- Fit pre-formed valve blankets around all but the smallest valves in the boiler house. Valve blankets may be held in position with Velcro or straps.



Fit valve blankets

- Install wall thermostats so staff and students are aware of temperatures. Being aware of temperatures will increase awareness of energy waste. Perhaps the boiler can be turned off earlier in the afternoon?
- Have a plumber check to see if the “weather compensator” in the boiler house is working. (Small schools may not have one. Almost all larger schools do). Repair may be necessary.



This is a weather compensator valve that has been disabled with a piece of string. As a result the schools fuel bills will be up to 10% higher.

Medium cost measures

- Existing heating system controls can be inefficient. Upgrades are well worthwhile as they can pay for themselves very quickly through energy and cost savings.

- Consider replacing old boilers. The older the boiler, the less efficient it is likely to be. New boilers are likely to be up to 20% more efficient than boilers which are more than 15 years old.
- Fit a monitoring and targeting system to the heating system to enable the fuel usage to be tracked automatically. The electricity meter and water meter may also be monitored automatically in this way.



Fit a monitoring and targeting system

- Consider zoning the heating system so that different areas can be on and off at different times.

Helpful hints

- Do** – Have your boiler serviced and flues or chimneys cleaned at least once a year by a reputable firm
- Do** – Have your thermostats and weather compensator checked once a year to ensure they are working
- Do** – Keep track of your fuel deliveries in order to track fuel savings or fuel wastage.
- Do** – Read the manual on how to operate your storage heaters correctly if your school uses these).
- Do** – Go out to tender for fuel and electricity at least annually. Seek competitive quotes from fuel suppliers and utility companies.
- Don't** – Cover radiators or allow new furniture to cover radiators.
- Don't** – Ignore stuck radiator valves. Get them fixed.
- Don't** – Open windows to control temperatures when heating is on.
- Don't** – Use Thermostatic radiator valves (TRV) in any room or corridor accessible to students.