

Heating, ventilation and air conditioning (HVAC)

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Improve energy efficiency of your organisation's heating, ventilation and air conditioning (HVAC), hot water and boilers with our energy-saving guides.



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Heating

Heating and hot water can account for 60% of your total energy use. By ensuring that efficient heating systems are specified, operated and maintained the potential savings can be substantial. There are three key ways of cutting your heating costs:

1. Turn it down

Lowering set points by just 1°C can potentially reduce your annual heating bill by up to 8%, so reduce the temperature on the thermostat down to the minimum comfortable level. Our [Heating employee awareness poster](#) and [Carbon Trust Thermometers](#) can be used to help communicate this message to staff.

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2. Replace inefficient boilers

Be aware when replacing inefficient boilers that the latest Building Regulations set minimum efficiency standards for new and replacement boiler installations. In many cases even higher efficiency boilers can be specified and you can gain better savings from a more energy efficient heating system.

3. Install de-stratification fans

In commercial or industrial buildings with warm air heaters and high ceilings, de-stratification fans can reduce energy use by 20% by blowing warm air down to ground level where it's needed.

Ventilation

Good ventilation is essential - it gives you fresh air and also helps protect a building against damp and condensation. Unnecessary ventilation can waste energy and cost you a lot of money. For example, ventilation accounts for around 30% of heat loss in most commercial buildings (an estimated 25% in industrial buildings).

1. Motors

When buying new motors, always specify higher efficiency motors as they will save you up to 5% on energy costs, for little or no extra capital cost.

2. Fans

Variable speed fans can slow down when ventilation demands decrease. This will save money on electricity as well as reducing heating/cooling costs. See Motors and Drives for more

3. Time settings

Make sure fans aren't running when they're not required. This not only wastes energy, but also removes heat from the building.

Air conditioning

Air conditioning can use a huge amount of energy. In fact, air conditioning can increase a building's energy consumption and associated carbon emissions by up to 100%.

Even though air conditioning can use lots of energy, lots of organisations choose to use it - not least because of the extra heat generated by increasing use of IT equipment.

Luckily, there are some simple, low-cost ways to save energy and make your air conditioning system more efficient.

1. Temperature control

Make sure your air conditioning doesn't operate below 24°C.

Also, make sure that you don't have the heating and cooling systems competing with each other - it's a waste of money. The best way to do this is to keep a temperature gap (known as a 'deadband') between your heating and air conditioning control temperatures.

2. Variable speed drives

Don't produce more cooling than you need - this wastes money and energy. Variable speed drives can vary the output of your air conditioning system to meet your needs throughout the day. This will help you save money on energy costs.

3. Free cooling coils

Free cooling coils use the outside air as a source of cooling for air conditioning systems (when it's cool enough). This saves money because you won't need to use as much energy to produce cooling for the air conditioning system.

With the UK's temperate climate, free cooling coils can produce big savings.

Heating, ventilation and air conditioning overview guide

Our 19-page guide gives an overview of heating, ventilation and air conditioning systems. It introduces the main energy saving opportunities for businesses and demonstrates how simple actions save energy, cut costs and increase profit margins.



Heating, ventilation and air conditioning can account for the majority of money spent by an organisation on energy. Even small adjustments to these systems can significantly improve the working environment and at the same time, save money.

Guide contents:

- Introduction
- Energy consumption
- Technology overview
 - Identify your HVAC system
 - Identify your business needs
- Opportunities for energy saving:
 - Reduce the need
 - Good housekeeping and staff comfort
 - Understanding and using controls
 - Maintaining existing systems
 - Looking at hardware opportunities
 - Upgrading or installing component parts of an HVAC system
- Next steps
- Appendices: Action checklist

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HVAC overview guide (CTV046) - digital download

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- [How to implement heating zone controls \(CTL148\)](#)
- [How to implement de-stratification fans \(CTL023\)](#)

Energy efficiency support

If you'd like to improve energy efficiency of your organisation, see [our services](#) to find out how we can help. This includes financing and implementation support for organisations seeking to invest in energy efficient equipment, for more details visit our [Implementation & finance](#) page.

If your organisation is based in [Wales](#) or [Northern Ireland](#), visit our regional pages to get details of our UK government-funded support.

You may also be interested in



Biomass heating tools and guidance

Guidance, tools and template documentation to help your organisation develop and install a biomass boiler and biomass heating system.



Heat recovery

Find out how heat recovery systems to recover and re-use waste heat can reduce your organisation's energy consumption



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We are independent experts on carbon reduction and resource efficiency, who reinvest surpluses from group commercial activities into our mission.

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