

# Five ways to **SAVE ENERGY** with your air conditioning

**WANT TO CUT ENERGY USE, IMPROVE THE EFFICIENCY OF YOUR AIR CONDITIONING AND REDUCE COSTS AT THE SAME TIME?** While it is an inescapable fact that air conditioning uses a substantial amount of electricity, most systems use much more power than they need to. Usually this is due to factors that can be easily remedied through improved maintenance, sometimes in conjunction with a few simple adjustments to the design or operation of the system.

Experience shows that these are the five main causes of excessive energy use. Generally the remedies are simple and in most cases inexpensive - in fact they should pay for themselves in next to no time.

## 1. OPERATING HOURS: IT'S ALL IN THE TIMING

Typically air conditioners are regulated by some type of time clock which automatically controls operating hours.

This very convenient feature is also a principal cause of energy wastage; often the air conditioning starts much too early or keeps running after everyone has left – or worse still it is left running over the weekend or during public holidays. Ideally, different seasons require different start-up times as the air conditioning load varies.

*Some simple but very effective remedies include:*

- Optimising start-up and shut-down times
- Adjust settings for daylight saving and seasonal changes
- Avoid unnecessary operations after business hours, during weekends or public holidays.

This is the simplest modification to make, yet you'd be surprised at just how many premises we find with incorrectly set time clocks.

## 2. MAINTENANCE: A STITCH IN TIME SAVES NINE

Air conditioning operates most efficiently (and uses the least energy) when it's working well. Otherwise it's like driving a car on flat tyres, or one that burns too much fuel – poor performance and a waste of energy.

Items such as blocked filters, dirty coils and fans all reduce the efficiency of your air conditioning system, making it work harder and longer to achieve the same result. Correct refrigerant charge is also important; a small error (undercharge or overcharge) has an exaggerated negative effect on system performance, efficiency and energy use.

A planned maintenance routine, carried out by competent technicians ensures that you get the most from your air conditioning equipment. When carried out correctly, energy savings alone should more than pay for the cost of maintenance.

## 3. TEMPERATURE CONTROL: WHO'S BEEN FIDDLING WITH THE THERMOSTAT?

Many air conditioning systems incorporate a number of zones where temperatures can be individually controlled. This is essential, as different zones need to be able to respond to changes in the environment – a west facing zone will need additional cooling during summer, for instance.

Typically the larger the site, the more zones - each with some type of temperature control. If they are not correctly set there is

the potential for the zones to 'fight' one another, causing the air conditioning to heat and cool simultaneously (often noticed as hot and cold zones, or fluctuating temperatures).

Not only is this uncomfortable and a cause of constant thermostat fiddling by staff, it is a waste of energy as well.

Correct thermostat setting, as well as correct location, is critical to good performance and efficiency. Sadly, it is also all too often ignored during maintenance duties.

## 4. AIR DISTRIBUTION: A QUESTION OF BALANCE

You have probably already heard the term 'air balancing'; basically it means delivering the correct amount of air to the right place. This is very important to ensure comfort conditions, and if it's right you should barely notice that the air conditioning is running at all.

Typically this gets fiddled with over the years, or perhaps it has not been adjusted correctly following changes to the work space, resulting in a system that is out of balance. Often this will cause hot and cold spots, uncomfortable draughts and annoying, whistling air noises.

Incorrectly balanced air systems not only create an uncomfortable environment, but they also waste energy as the system struggles to compensate – often by switching on and off more often than is otherwise necessary, or by alternating between heating and cooling as it reacts violently to the temperature swings.

## 5. EXTERNAL AIR: FRESH IS BEST

Air conditioned premises should not be thought of as closed environments; a completely sealed system would be neither safe nor comfortable.

Every workplace needs to introduce a certain amount of fresh air – depending on use, otherwise it would be unhealthy and it would feel stale.

As it's often the case, it's a question of balance. The external air might be hot and humid (eg in summer), which needs to be conditioned at great expense, so it's important to not have too much. On the other hand, cool outside air can be used effectively to cool or pre-cool premises – for instance, to get rid of build-up heat after a hot weekend.

This is a relatively simple adjustment, although often ignored as it is not viewed as a maintenance issue. Nevertheless it could make a significant difference to energy consumption and operating costs.