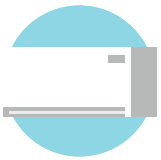
Save on your bill
Air conditioning



Because air conditioning can account for up to 50% of a business's total electricity bill, it's a great idea to put measures in place to improve its energy efficiency.

Consider natural ventilation

- Natural ventilation can be a great alternative to air conditioning, where it will not pose a health risk or cause strong fluctuations in temperature
- Slow-moving ceiling fans or roof vents may help to disperse hot air in high-roofed areas. It can be a good idea to reduce the number of fans you have, as one large fan could be more effective than many smaller ones
- Ceiling fans can be effective in both winter and summer, thanks to their ability to change the direction of rotation with the switch on the side
- To keep your office warmer in winter, close doors, install door strips or door snakes, lay floor rugs and use heavier curtains
- To cool the office in summer, open the windows and lower external blinds. Remember to open windows at night, if possible, to cool the building down
- Install sensors on your air conditioner to ensure they are not running while the windows or doors are open.

Set optimum temperatures

- For the most efficient running, maintain room area temperatures at 18°C during winter and 25°C during summer. Every one degree difference adds around 10% to your air conditioning running costs
- Set the temperature to a range of around 2 to 3°C to prevent the air conditioner cycling on and off frequently and wasting power
- To prevent staff changing the temperature settings, install locking covers on your thermostats
- In winter, start the morning temperature pick-up with outside air dampers closed. Complete the warm-up during the first business hour, and set back the temperature for the last hour of the day
- In summer, start the morning pre-cooling with outside air dampers open. Complete the cool-down during the first business hour, and set back the temperature for the last hour of occupancy
- Encourage your employees to dress appropriately for each season.

Minimise heat loss and gain

- Internal heat gain (from things such as occupants, lighting, refrigeration, cooking equipment, office equipment and even the cooling system itself) can significantly increase the need for cooling. Reducing internal heat loads reduces both the electricity used by the equipment and your cooling requirements, by up to 40%.
- To minimise internal heat gains, use energy efficient lighting, avoid unnecessary electrical equipment usage, provide heat-generating equipment with a separate ambient air supply and extraction system, and locate heat-generating equipment outside the building if possible
- Consider installing insulation, double glazing, window and wall shading, window tinting/ reflective coating and blinds/curtains to improve your office's energy efficiency
- Install ceiling insulation to reduce your heating and cooling costs by up to 40%. Wall insulation may also help, so ask your insulation contractors for their advice
- Install automatic closers on external doors to prevent them letting air in or out, and close doors to unused or rooms not air-conditioned
- Close the shades on east facing windows in the early morning, and those on west facing windows in the late evening to reduce heat gain from the early morning and late afternoon sun
- Insulate bare pipes and ducts running to curb heat loss/gain and deliver heating and cooling to the people, rather than the space
- Draft-proof your windows and doors with weather stripping and caulking to prevent air leaks, which can increase electricity bills and cause problems with moisture
- Install a relay switch on the air conditioning in loading areas, so that it turns off when doors are opened. In heavily used loading areas, consider installing partitions and local air conditioners or heaters for your employees.

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Only heat and cool when and where necessary

- Shut down air conditioning systems at the earliest possible time in the evenings and on weekends. This may require leaving on a small stand-alone system to keep computer equipment rooms cool
- Reduce the air conditioning in spaces that are only used for short periods, such as stairwells, lobbies and unused spaces
- Shut off all unnecessary lights, cooking equipment and office equipment to reduce the need for cooling
- Turn off exhaust fans in washrooms and kitchens with a timer when the building is unoccupied
- Rewire the toilet and bathroom fans to operate only when the lights are turned on.

Energy efficient air conditioning systems

- Consider installing energy efficient variable speed drives (VSDs) or inverter systems, which match the speed of the air conditioner's fan motors with the amount of air that is needed, to save up to 30% on running costs
- You can also install VSDs on fans, chiller water pumps and heating pumps. Consider converting constant air volume systems to variable air volume systems, as well as converting dual duct systems to single duct systems
- In low-humidity areas, evaporative coolers make use of the cooling effect of evaporating water to save you up to 25 to 35% on running costs
- Automate your air conditioning system with an energy efficient programmable thermostat. An 'old-fashioned' thermostat turns the air conditioner on and off based on temperature, not whether the building is occupied, or whether you benefit from the cooling/heating
- Heat recovery can help capture and re-use waste heat from heat-generating processes. An energy recovery ventilation system can use waste energy from the exhaust air stream to condition the incoming fresh air
- Ensure you install the right sized air conditioning equipment to suit your premises, and avoid both unnecessary investment and higher operation costs.

Energy management system (EMS)

- An energy management system (EMS) is a centralised control system that takes over manually controlled functions, saving up to 30% in electricity costs. An EMS can range from a simple unit for one or two pieces of equipment, right up to a complex system that can control lights and equipment throughout your building
- An EMS monitors total building loads and turns appropriate equipment on or off. An EMS can analyse outside and inside temperatures and regulate the air conditioning system in your building
- An EMS is especially useful for complex air conditioning systems, enabling you to choose different temperatures for different zones, start and stop times, and strategies to minimise electricity use.

Maintenance

- Regularly inspect your air conditioners and keep them in good repair. It's an easy, affordable way to ensure they perform at their best and minimise electricity use
- Perform regular maintenance, check for damage or leaks, and ensure adequate refrigerant levels.