

# Maintenance programme in place for chillers and air-conditioners

Maintaining air-conditioning at peak performance

The performance of HVAC equipment often deteriorates over time. Therefore, thorough maintenance programs can bring substantial, cost-effective savings (a sample of nine office buildings in Sydney that implemented such maintenance programs, achieved median energy savings of 23%). The ongoing annual cost of the maintenance program was typically around 15 per cent of the ongoing annual energy savings.

A typical maintenance program should include:

- Clean evaporator/condenser, fins and filters and replace filters in air-conditioners regularly. A dirty filter will mean more energy is needed to pump air across the coils. If the coils or heat exchanger become dirty, their efficiency will decrease and the building will not be able to maintain its temperature settings.
- Check for air leaks. Ensure no air is leaking from air ducts. Recent studies indicate that 10-30% of the conditioned air in an average central air conditioning system escapes from the ducts. Test for air leaks in ducts by listening, visually inspecting damage, or by brushing soapy water across joints and watching for bubbles.
- Seal air leaks around doors and windows.
- Insulate air ducts and pipes to reduce excess heated or cooled air being lost.
- Check for a rise or drop in temperature in ducts and pipes by measuring the temperature at both the beginning and end of pipe runs. If there is a significant temperature change, upgrade insulation, especially if pipes are exposed to the outdoors or enclosed in a roof space that gets hot.
- Check thermostat calibration.
- Check sensors and controllers are operating correctly.
- An operational check on chillers and boilers, which can be done for a small cost, will indicate how efficiently the equipment is operating and what areas need attention. The staging of chillers and boilers is also important to ensure the correct equipment operates efficiently for the load of the day. Attention to inefficient chillers and boilers can reduce energy use by up to 30%.



*Savings:  
Can reduce running  
costs up to 15%*

Application: On all air conditioning units

Ease: 4/5

Availability: 5/5

Cost: Between R300 and R600 per unit

Payback: less than 1 year depending on period of operation

*Requirements to meet criteria:*

- Chillers and HVACs must run at peak performance
- A professional tune-up must be conducted annually incorporating all of the points listed above.