

Facilities Management from A to Z

Based on The FM Lexicon by Martin Pickard
published monthly in Facilities by Lexis Nexis between 2008 and 2016



Air conditioning

This is generally defined as a system for controlling the humidity, ventilation and temperature in a building. However, when design constraints mean that such systems are incapable of handling extremes of heat or cold, this can lead to misunderstandings and dissatisfaction among occupants, who have expectations beyond the capability of the system installed.

Poorly maintained air-conditioning systems can lead to the growth and spread of bacteria including *Legionella pneumophila*, the micro-organism that causes the potentially fatal legionnaires' disease. On the other hand, well designed and maintained air-conditioning systems can have a positive effect on sufferers of allergies and asthma.

The demand for air conditioning in offices in the UK is growing fast as a result of building users' increased expectations of comfort, much more intensive building use and perceived climate change. However, air conditioning uses a lot of energy and the desire for a reduced carbon footprint often leaves the air-conditioning system under attack. In a closed building system, every additional heat input such as the turning on of a light bulb causes the air-conditioning system to work harder, thus consuming even more energy. As a result, a 100-watt bulb may actually require 150 watts of energy.

Good design and more effective maintenance are the key to improving energy performance and controlling health issues. Unfortunately, recent research (Ref Nickleby) shows the UK maintenance industry is underperforming following years of cost pressure by clients and a failure to take a long-term, strategic view of what many see as a short-term reactive matter.

A number of architects and building designers are now championing a return to natural ventilation as a viable alternative to air conditioning and its energy-consumption problems. Mixed-mode systems are also an increasingly popular option. Many of these draw on the concept of the wind tower which was once a common feature of buildings in the Middle East. These use the effect of wind blowing around and across a building to draw hot air out and thus encourage a natural flow.

The Chartered Institute of Building Services Engineers is the best source of advice for all matters to do with air conditioning (www.cibse.org).