



MANY considerations influence the planning of a computer suite. In addition to air conditioning, no-break power supplies and stabilisation systems, a new computer room could involve raised modular flooring, suspended acoustic ceilings, power and computer wiring, fire detection and automatic extinguishing systems, modular demountable partitions (possibly fire rated), light fittings, venetian blinds, double glazing, and so on.

But it must be stressed that computers, as much as people, depend on the right environment for satisfactory operation, and this can only be achieved by specialised air conditioning equipment.

The four salient factors are temperature, relative humidity, filtration and operator comfort. It is important not to misinterpret computer manufacturers' specification sheets. These may indicate very wide temperature and humidity tolerance bands, perhaps 15°C to 30°C with relative humidities between 20 and 80 per cent. These are not necessarily recommendations. The recommended parameters are more likely to be a temperature of 20°C (± 2 degC) and a relative humidity of 50 per cent (± 10 per cent); perhaps even closer with larger systems.

These quite onerous conditions must be satisfied by the air conditioning plant, making it the most important piece of ancillary equipment in the suite. The heat dissipated by the computer and peripheral equipment — plus gains from the sun, lights and personnel — necessitates closely controlled conditions to prevent room temperature and humidity straying well outside safe permissible limits.

This requirement has led to the development of all the systems specific to computer installations.

The normal practice is to recirculate the room air and replace between 5 and 10 per cent with fresh air, to provide ventilation for the occupants and to pressurise the room to prevent dust ingress through leakage points. The incoming fresh air must be filtered to very high standards as it is the only air introduced into the conditioned area.

Computer rooms are air conditioned by either central plant or free standing in-room units. Ducts are needed for central plant because the air handling equipment is housed in a remote plant room. Free standing units are usually positioned in the computer room itself.

Heat is removed from the room by a flow of cool air. To ensure that the air pattern and flow do not cause discomfort, high noise level and paper disturbance, air change rates must be



COMPUTER ROOMS

Harry Speight, sales director of Denco Ltd, explains how to get the atmosphere right

held at an acceptable level. This is usually around 30 or 40 per hour for free-blow applications, although ventilated ceilings or floors will allow much higher change rates. It is worth remembering that too crowded a room

will result in too high a rate, producing uncomfortable and draughty working conditions.

There are also two methods of air distribution — high level or under floor supply. Either can be satisfactory. It is the nature of the area to be conditioned that determines approach.

Close temperature and humidity control are essential. Some computers contain thermal switches which shut down the system when the temperature reaches a predetermined level. Disk packs may also be affected by temperature changes, presenting problems in locating and accessing data because of disk expansion and contraction.

High relative humidity can cause media to swell and feed incorrectly. Condensation may add to the problem when the outside temperature falls below the room dewpoint. Low relative humidity, on the other hand, will cause dryness which may result in build-up of static electricity, which is inconvenient, perhaps even hazardous in computer rooms. This is certainly true when floor coverings with high electrical resistance combine with high temperature and low humidity.

In fact, it is possible to generate static with a potential of hundreds, even thousands of volts. These build ups can actually burn personnel when they discharge.

Today's computers are designed for expansion. All the associated services, including the computer room, must be capable of keeping pace with enhancement. Failure to allow for growth can and probably will involve costly compromise later. The keyword in planning any computer suite is 'modular.' Structure, services and all equipment must be such that expansion can be accommodated quickly and economically.



This is Denco's new Monitrol computer system, capable of monitoring and controlling up to 64 air handling units. It is designed for Denco's Series 2 Computaire close control air conditioners.

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