

BUILDING MANAGEMENT SYSTEMS

THE CONCEPT

A Building Management System (BMS) is a controller designed to run a building as efficiently as is possible, usually from one central location.

It can be a simple heating management system – running just the heating; or it can be a sophisticated control, expanded to manage an entire site. For example, compressors and process equipment can be linked in; and any monitoring and targeting from meters, linking in of access systems, alarms and lighting controls can be added.

The equipment has the potential to begin as a small controller and expand through its modular concept, block by block as requirements are altered and adjusted.

THE BENEFITS

- Ease of control: - an entire site can be managed from one location
- Information access: - information is immediately available from items linked to the controller eg temperature data logging
- Energy cost reductions: - substantial cost savings, for example heating – typically around 30%
- Better working conditions: - achieved by increased accuracy of management: a more constant temperature is maintained

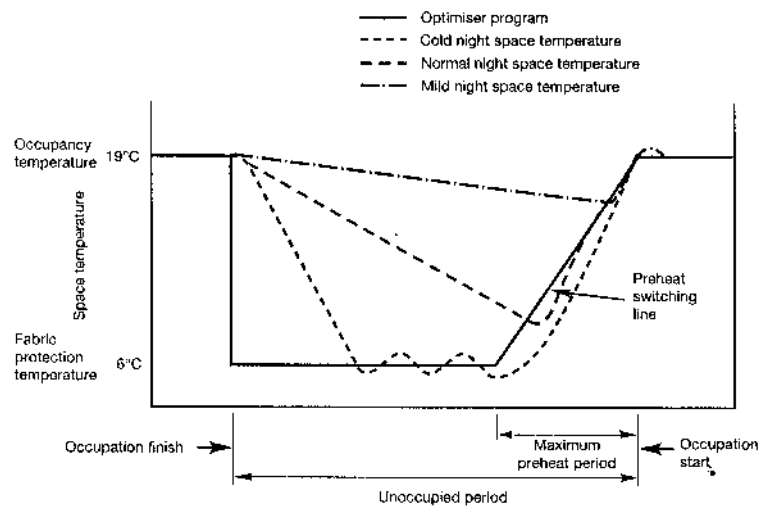
HEATING MANAGEMENT

Why will a Building Management System achieve energy savings?

1 OPTIMISATION

Rather than a time clock bringing a heater on at the same time every day, an optimised system calculates the least amount of time required to achieve temperature by the start time.

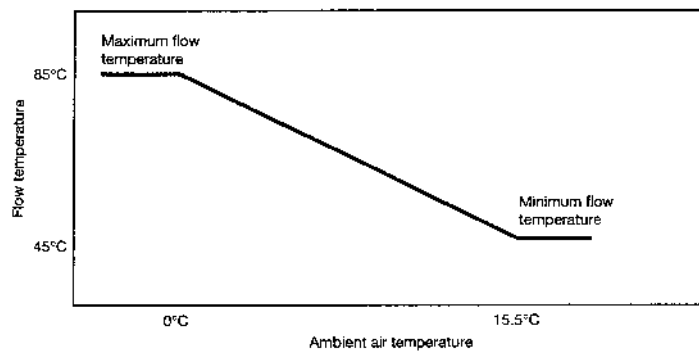
Optimiser function



2 WEATHER COMPENSATION

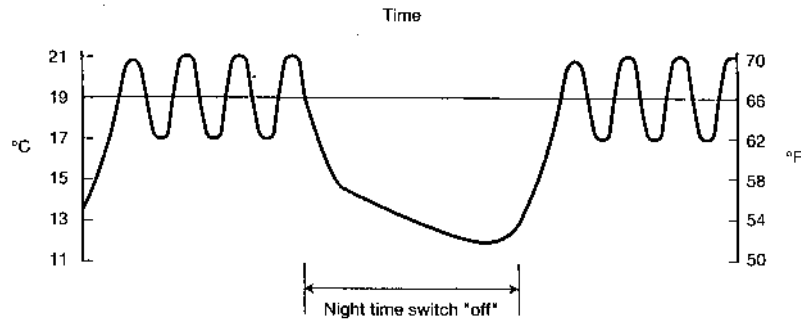
This concept adjusts heating requirements dependent on external weather variations- the warmer external temperatures, the cooler the water flows on a boiler (and vice-versa).

Compensator slope



3 ACCURATE TEMPERATURE CONTROL

Temperature variations are minimised.
Below is a typical temperature profile on a traditional heating system, readily rectified by installation of proactive accurate sensors.



4 TAMPERPROOFING

This system ensures that only those that should have access to the system are able to alter it.

5 DELAYED THERMAL RESPONSE (DTR) PRINCIPLE

This burner management principle will ensure the most effective running of warm air heaters- pulsing during the heating cycle. A 500000 Btu blower will often only output 400000 Btu (25% heat loss). DTR reduces the heat that otherwise dissipates up the flue

OTHER CONTROL BENEFITS

- Tamperproof time / temperature control
- Holiday programming
- Frost protection to $\frac{1}{2}$ °c accuracy
- Pump / valve protection to avoid seizure when not in use
- Degree-day monitoring (pc control)