

Planning your building controls and building energy management system (BEMS)

Step 2: Thinking about the system and controls

1. Objectives

Specifiers and building managers should consider these objectives, and examine their priorities. It should not be assumed that the BEMS will achieve these objectives, unless they have been discussed with the controls consultant.

- **Comfort for occupants?**
- **Energy efficiency?**
- **Requirements of legislation or incentives?**
- **Data collection and analysis?**
- **Maintenance and plant life?**

The following points are strategies to consider:

2. Comfort and energy efficiency

- **Seasonal changes to set points**
- **Limited local control**
 - show to increase occupant satisfaction
 - BUT ensure automatic return to set points
- **Optimum start/stop**
 - just-in-time heating and cooling
 - timing must reflect actual hours of occupation
- **Demand control**
- **Night cooling**
- **Control of lighting**

3. Data and analysis

- **Should be regarded as a must-have feature**
- **Powerful tools for analysis**
- **Useful for bill verification**
- **Can be used to show effectiveness of energy-saving strategies**
- **Data required by legislation and benchmarking**
- **But think about how you want the data presented**
- **Where will the data be stored?**

4. Maintenance & plant life

Better control of plant extends plant life and helps with good maintenance. Consider the following technologies and techniques:

- **M2M (machine-to-machine) messaging for rapid response to faults.**
- **Plant rotation for longer plant operation**
- **Condition monitoring to help detect failure or vibration which can indicate imminent failure.**
- **Maintenance schedules and planned preventative maintenance**
- **Auditing and recording maintenance**
 - keep an audit trail for the FM department or third-party maintenance provider.

