



Bulletin

BUILDING MANAGEMENT SYSTEM

From Indian Green Building Council, CII-Sohrabji Godrej Green Business Centre



Introduction

Building Management System (BMS) is one of the important components in constructing a green building. It ensures that the building remains 'green', through its life.

BMS is basically a solution which is put into a facility to ensure an environment that is safe, secure, comfortable and energy efficient.

When properly integrated into a facility, BMS can result in the following benefits:

- ❖ Optimize energy consumption
- ❖ Provide alarm systems so as to take corrective actions
- ❖ Monitor and control indoor comfort conditions

The additional investment on BMS pays itself through savings in energy consumptions.

The normal pay back period for investment in BMS varies from 2-4 years.

Typical Applications of BMS in a Building

- ❖ HVAC and Lighting control
- ❖ Emergency lighting
- ❖ Safety & security solutions
- ❖ Intrusion alarm systems
- ❖ Security management
- ❖ Water management and control

A building management system minimizes energy consumption and maximizes indoor comfort, making it a valuable tool for any sustainable design.

Benefits of BMS:

- ❖ Operational energy saving to the extent of 15 – 20%
- ❖ Maintenance of comfort conditions
- ❖ Enhances indoor air quality
- ❖ Provides critical alarms and remedial actions

Building Management & Green Buildings

1. Optimizing Energy Efficiency

A fully optimized BMS can save energy cost to the extent of 15-20% as compared to a building without BMS.

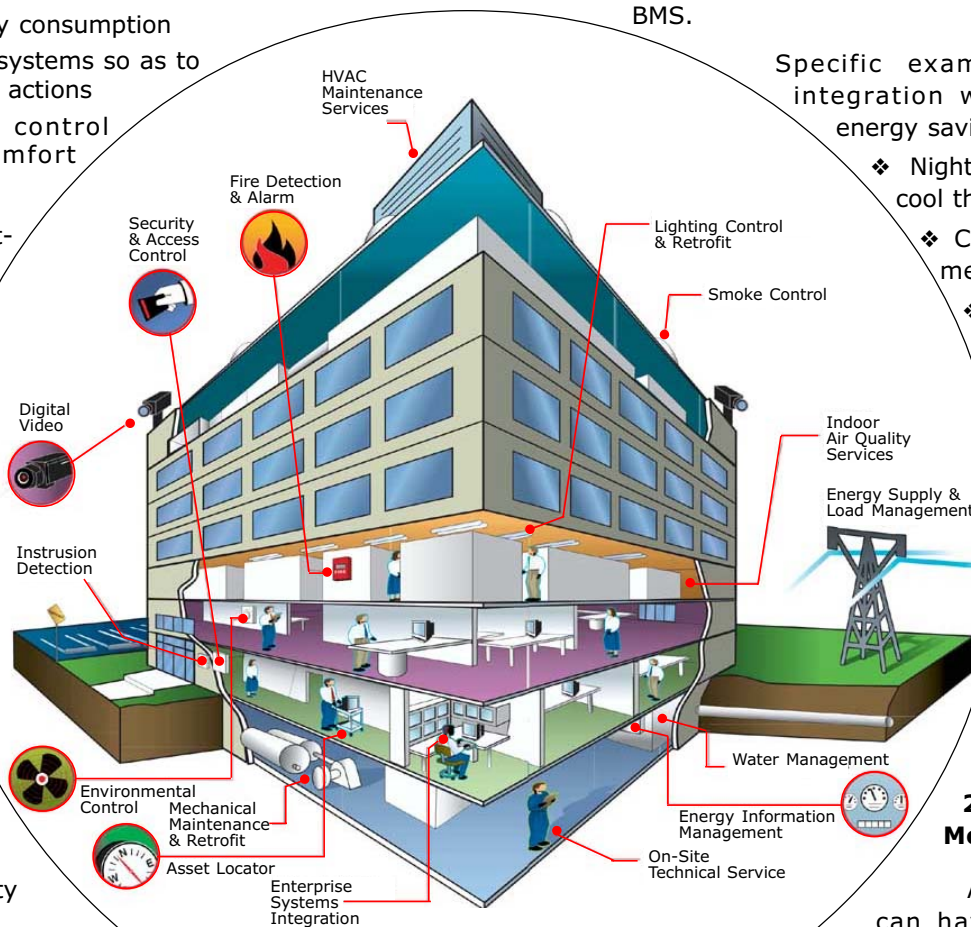
Specific examples of BMS integration which result in energy saving are:

- ❖ Night time purging to cool the building
- ❖ Chiller management
- ❖ AHU fan speed control based on heat loads
- ❖ Speed control of chilled water pumps based on heat loads
- ❖ Lighting controls
- ❖ Temperature and humidity control

2. Performance Monitoring

A green building can have the best of systems, lighting, efficient glass etc; However, optimization of performance can be ensured only through regular monitoring with the help of BMS.

BMS can help in real-time monitoring and record of past data. This enables diagnosis in the event of any non-performance.



Continuous monitoring also helps in re-defining the baseline energy consumption which can help in continuous improvements.

Installing BMS can help in contributing to following credit points under the LEED rating system:

- ❖ Enhanced Commissioning
- ❖ Measurement and verification
- ❖ Outdoor air delivering monitoring
- ❖ Thermal comfort, verification

3. Enhancing Indoor Air Quality

BMS can also help ensure the comfort and health of a building's occupants by automatically monitoring the amount of fresh air that enters a space. Sophisticated BMS systems can also track the occupancy status of each zone and accordingly adjust fresh air flow.

As per ASHRAE 62.1 -2004, majority of occupants in a space would be satisfied with respect to human bio-effluents (body odour) if a differential (between inside & outside) CO2 level of 700 ppm is maintained.



CO2 Sensor

If you are constructing a building, Go Green!

CII-Godrej GBC offers Green Building Advisory Services in India to achieve the green building rating awarded by USGBC, under their LEED Rating Programme.

For assistance, kindly contact:

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Green Buildings in India where BMS is installed:

- ❖ CII-Godrej Green Business Centre, Hyderabad
- ❖ ITC Green Centre, Gurgaon
- ❖ Wipro Technologies' Development Centre, Gurgaon

4. Safety of Assets and Security Solutions

It is critical for Building Managers to ensure rapid detection, notification and evacuation in the event of fire. BAS can be integrated with Fire Safety Control Panels with back-up power supplies, Audible Alarms (through speakers, bells, horns etc), Emergency Voice Evacuation Systems and PA Systems.

Other Security Solutions include:

- ❖ **Access Control System** - Controls the movement of people and assets by integrating this data with back-end applications such as Time Attendance Systems, Asset Tracking, Payroll Processing, Hazard monitoring, Vehicle Management etc.
- ❖ **Video Surveillance Solution** - It is the first line of security that allows security staff to monitor a large facility.
- ❖ **Perimeter Solution** - It detects intrusion around the perimeter of the facility.

Case Study on Energy Savings through BMS

CII-Godrej GBC, which has achieved the platinum rating, did a study of the energy consumption of the building with and without the BMS. The results reveal that there is a clear energy saving of 13%, when BMS is in operation.

Total Power Consumption*

Without BMS	: 479 kwh/day
With BMS	: 415 kwh/day
Savings	: 64 kwh/day

*The results are for the same outside weather profile and similar indoor conditions.

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