

HVAC – Unoccupied Mode

Most buildings still condition rooms assuming maximum occupancy rather than actual usage. “Unoccupied mode” is an energy-saving strategy that reduces the energy spent on climate control when the room/space is not in use, e.g. nights, lunch or weekends. The HVAC system can be programmed to shut-off or set-back in order to save energy. The system can be controlled by a time schedule or sensors (typically occupancy sensors or CO₂ sensors). A considerable amount of energy can be saved when implementing this strategy as HVAC systems typically account for between 10% and 70% of a building’s electricity usage.



Recommendations

- Design the HVAC system to shut down or easily operate with a “set-back” control setting (i.e. wider temperature control band or reduced air flow) for unoccupied periods.
- Balance the energy savings with occupant comfort needs.
- Develop a profile of actual or expected occupancy.
- Decide on a system control option e.g. time schedule, occupancy sensors, manual switchover etc.
- HVAC fans should remain on during unoccupied hours in spaces that have health and safety mandated minimum ventilation requirements.
- A minimum of 2° wider temperature band is recommended for set-back control (e.g. if the band allowed for an occupied room is 20° to 24°C then the band for an unoccupied room must be 18° to 26°C).
- Energy modelling can be done to propose the optimal set-back temperature settings for the building.
- Consider natural ventilation (see Eco Card) or mixed mode HVAC operation.
- Setback controls applies to Green Star Credit ENE-11
- Contact [Ecolution](http://www.ecolution.co.za) for more details.

Environmental Improvement	High
Awareness Impact	Medium
Capital	Low
Payback	1 – 5 years

Savings and Benefits

- Reduces energy consumption
- Can integrate occupancy sensors with lighting and BMS systems
- Reduces GHG emissions
- Reduces electricity cost
- Easy-to-implement
- Reduces equipment wear

