Installation of Occupancy Lighting Sensors [OLS] in Buildings

The University is keen to limit its impact on the environment and make energy savings wherever possible but recognises that this needs to be achieved in a way that will not compromise the safety of its staff and students. One way of making energy savings is to use occupancy lighting sensors in rooms and circulation routes in both new buildings and be retrofitting into existing buildings, so that lights will switch off after a certain time if the room/area is unoccupied.

This document seeks to inform building occupants of the various types of systems that are available and their application, and establish guidelines for how the Estate Office will introduce any such systems.

Consultation Requirements

It is important that where OLS are to be used, that there is appropriate consultation with local users/occupants prior to their installation so that the occupancy profile of the area is established. This will assist the designer/installer of the system in determining the correct type and location of sensors that should be provided. For new buildings the Design Consultants must discuss this with the occupants representatives on the Design Team at the design stage. For retrofitting into existing buildings the Estate Office Electrical Design Engineer will contact the relevant School or Departmental Safety Officer in the first instance to establish who would be the appropriate person(s) to be involved.

Types of detectors and their modes of operation

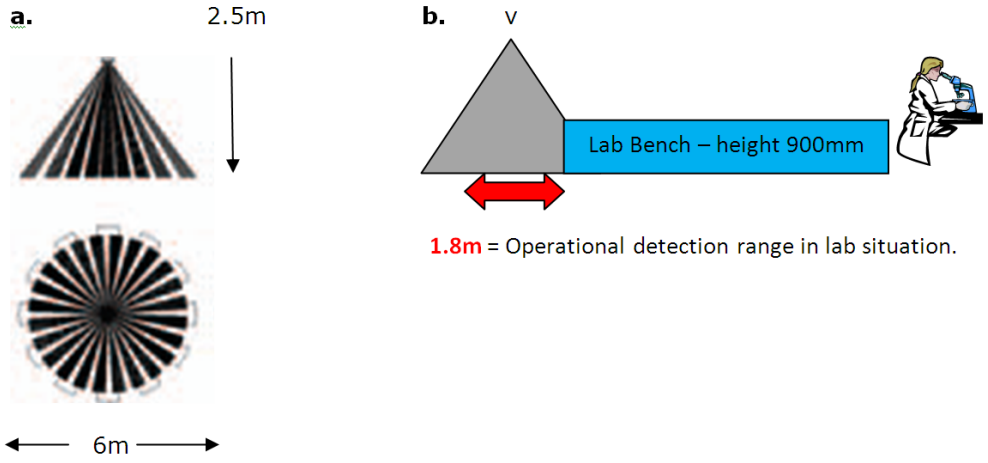
Sensors

Detectors may have microwave [MW] or passive infra red [PIR] sensors.

- PIR sensors have a very limited range of detection. Though range may be quoted as 3m radius, this is at floor level, and therefore in a lab situation where there are benches at 900mm the limit of detection will be much less [see Diagram 1 below] This situation may be further exacerbated by the presence of benches with central shelving or other high obstructions [e.g. labs/workshops]. These detectors are also relatively insensitive to relative small movements associated with many procedures such as microscope work and PC use.

- MW sensors have a much greater range of detection. They operate by ‘filling’ the room with microwaves and then detecting any movement within it. Therefore they will pick up very slight movements and are not affected by obstructions in the way that PIR detectors are. However, if not correctly adjusted they can detect movements outside of the room and for example be activated by leaves blowing outside.

Diagram 1



a) Range of a standard PIR detector, b) Limitations of PIR detectors

Detection Mode

Detectors may also be adjusted to operate in 'presence' or 'absence' mode.

- Absence detectors will switch off the lights if the detect no movement after a set time known as the 'latch time'. The latch time can be varied depending on the circumstances of occupancy and should be agreed as part of the consultation process. Absence detectors are not suitable for use in rooms where there are internal rooms or areas shielded from the detectors where people may be working for periods in excess of the latch time set. Otherwise people may walk out of an internal room to find themselves in the dark.

- Presence detectors will be activated on detecting movement. In most areas a combination of absence and presence detectors with an appropriate latch time will ensure safe operation.