

# Low energy lighting

Creating low energy lighting projects requires a synthesis of product and design that is often lacking from current practice. Efficient luminaires are obviously important, but they will not deliver their potential unless well used. The application is as important as the product. This page highlights the criteria to be considered:

## Lamps

T5 fluorescent lamps are usually a good starting point, but sometimes other lamps can offer just as good or even better solutions. Some CFL lamps are very efficient in certain luminaire types. In some cases, metal halide and LED fittings can offer the best solution. In general terms, significant use of incandescent, halogen and standard fluorescent lamps is not acceptable in a low energy scheme.

## Control gear

Gear losses were once overlooked in lighting efficiency, but current standards require low loss gear. High frequency ballasts for fluorescent lighting are essential and, as such, Clearvision only supplies fluorescent fittings in this format.

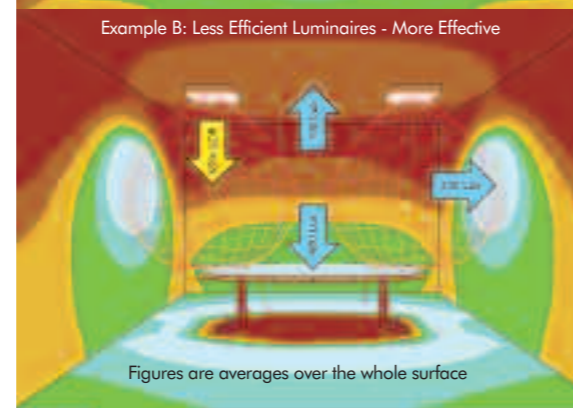
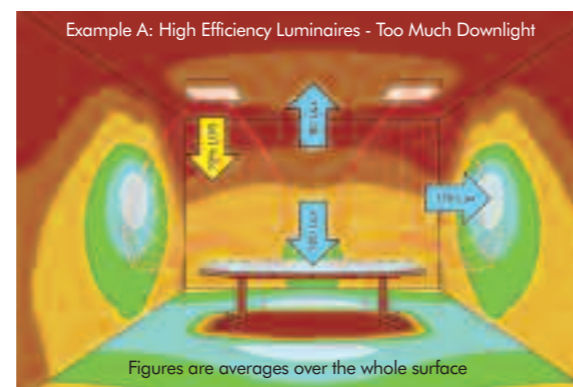
## Light Output Ratios (LOR)

The LOR describes how much of the light from the lamp actually leaves the fitting and is sometimes much lower than people imagine. An LOR can be upward or downward. An upward LOR may look impressive but is usually quite

inefficient at lighting the whole space. A downward output is often lower, but more efficient for lighting the working plane.

## Effective distribution

Effective lighting is more than just a high LOR; it must also have reasonable balance across all the room surfaces. In this, uplight and wider distribution can both help. Sometimes a lower LOR, but wider distribution, will allow better spacing and result in a lower energy load for the overall project.



## Task lighting

The workstation is the best source of task lighting. Distance increases the power needed in comparison to a source close to the task. The area lighting characteristics of ceiling fittings also create problems in providing individual control, which is both more ergonomic and important in reducing energy use.

## Ambient lighting

The function of ambient lighting is to create a natural comfortable, feel for the whole workspace. People prefer a bright, airy feel without the rapid changes of brightness that can be uncomfortable. Ambient light should only have to provide general lighting levels and not those required for more intensive visual tasks.

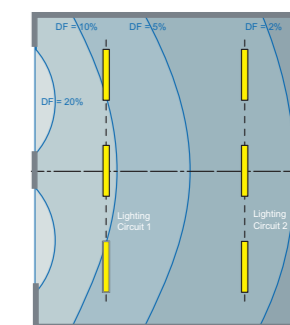


## Controls

Controls can be either a solution or a problem, depending on how they are applied. In cellular offices, it makes good sense to have presence detection to ensure lights are turned off when they are unoccupied. However, in open plan space, the case for presence detection is not so clear and daylight linking is often more effective. Any control setup should reflect the way the space is actually used, with the flexibility to adjust to change.

## Daylight

Daylight is a key ingredient in a productive workplace. Indirect daylight is the preferred light source for most people and it does not consume energy. Better control and optimisation of daylight is both a factor in ergonomics and energy conservation. Therefore improved integration of daylight and artificial lighting will help both workplace performance and the future of the planet.



Room plan - daylight factors display