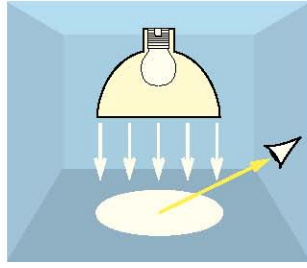


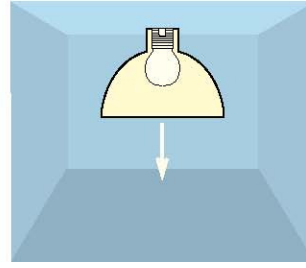
Luminous intensity (I)

Luminous intensity is the amount of light, luminous flux, radiating in a particular direction. A point source of light of luminous intensity of 1 candela (cd) in all directions emits 12.57(4) lumens. The distribution curve for a luminaire indicates the luminous intensity in a particular plane. The plane at right angles to a fluorescent lamp is known as the transverse plane (0°) and that is normally provided in manufacturers technical data.



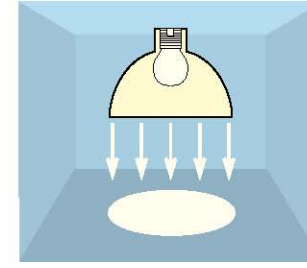
Luminance (L)

Luminance is the brightness of a light source, an illuminated or luminous surface. It is measured in intensity per unit area, that is candelas per sq.metre, **cd/m²**. Luminance is the measured brightness of an object. What the eye actually perceives is not luminance but as apparent brightness or luminosity, and that cannot be measured.



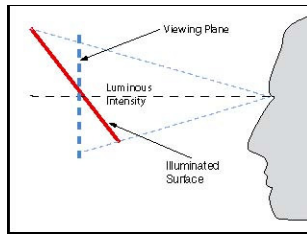
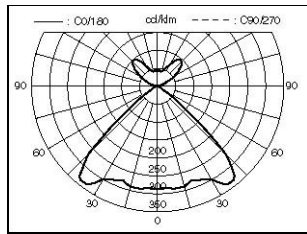
Luminous flux (LM)

Luminous flux is the rate of light emitted by a light source. It is measured in **lumens**. The lumen output of a 100W tungsten lamp is 1300 lumens and that of a multi-phosphor 1200mm T8 36W fluorescent lamp 3350 lumens.

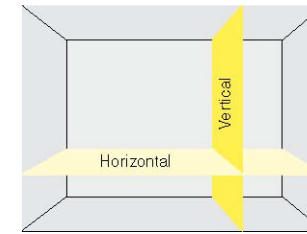


Illuminance (E)

Illuminance is the amount of light, **luminous flux**, falling on a surface. It is measured in lumens per unit area, that is lumens per metre², lm/m² or lux.



Upper Lum	inous Flux
Lower LumEffective Lu	inous Flux minous Flux
Working Plane	



Reflectance

Reflectance is the percentage of light reflected by a surface. There is a mathematical relationship between illuminance, reflectance and luminance.

Luminance **cd/m²** =
Illuminance(lux) x Reflectance
3.14159

Planning for illuminance and depreciation

Illuminance is always the maintained illuminance; that is the value of illuminance below which the installation should not fall. A factor is allowed in illuminance calculations to take account of the depreciation of light output from the lamps during life and from the luminaires and the surfaces due to use.

Light output ratio and flux fractions

Light output ratio is the ratio of the luminous flux output of a luminaire compared with the total luminous flux output of the lamp it contains, expressed as a percentage. The light output ratio (**LOR**) can be split into upward (**ULOR**) and downward (**DLOR**) components. Each component can be expressed as a fraction of light output ratio.

Luminous efficacy

The luminous efficacy of a lamp is expressed as the ratio of the luminous flux emitted by that lamp to the power consumed, that is lumens per watt, **lm/W**. Thus the 100w tungsten lamp emitting 1300 lumens has a luminous efficacy of 13 lm/W. An 18W compact fluorescent lamp emitting 1200 lumens has luminous efficacy of 57 lm/W (including gear losses).

Installation efficacy

This is often expressed as the overall efficacy of an installation per 100 lux and typical values for a modern fluorescent installation would be **1.5 - 2.0 WM² /100 lux**.