

lamp selection

> weblink > **LAMP**

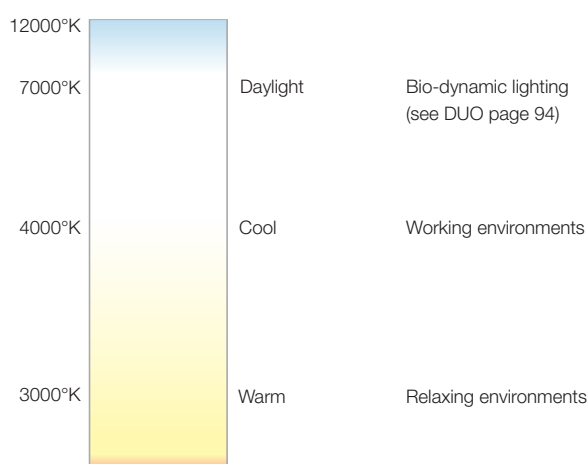
Lamps

Selecting the best lamp for an application raises a number of options to be considered. Amongst these considerations are lamp colour temperature, colour rendering index and the lamp life.

Colour Temperature

The characteristics of a light source is evaluated by the manufacturer in terms of its colour temperature. This is a measurement given in degrees Kelvin (°K). The colour temperature of a light source defines its 'whiteness', 'yellowness' or 'blueness' – i.e. its warmth or coldness. It does not define how natural or unnatural the colours of objects will appear when lit by the source, this is defined by the colour rendering index.

LAMP COLOUR (°K)



Colour Rendering Index (Ra)

To help indicate how colours appear under various light sources, a system was devised to mathematically compare how a light source shifts the appearance of a series of sample colours compared to a reference source. The CRI shows the ability of a light source to faithfully reproduce colours in comparison with a natural source. Light sources with a high Ra value are desirable in colour-critical applications such as healthcare, graphical work and retail.

It is therefore essential to specify both the colour temperature and colour rendering index when selecting lamps

Typical Lamp CRI Figures

- Fluorescent lamps with CRI 80+ will produce a first class environment
- Specialist CRI 90 are available. Currently used in some healthcare areas and specialist retail applications where colour rendering is critical.
- Typically HID sources will have low CRI figures. These range from CRI 5 – 70
- Modern CMH lamps can achieve CRI 80 – 90



Colour rendition CRI 80



Colour rendition CRI 60

Lamp Life

The rated life of a lamp is given by manufacturers based upon IEC test criteria. In this way, comparisons can be made between light sources and between manufacturers. It is expressed in terms of the average number of hours operation until failure.

By giving the option to specify standard or long life lamps, Whitecroft Lighting recognise the benefits to the life cycle costs of an installation.

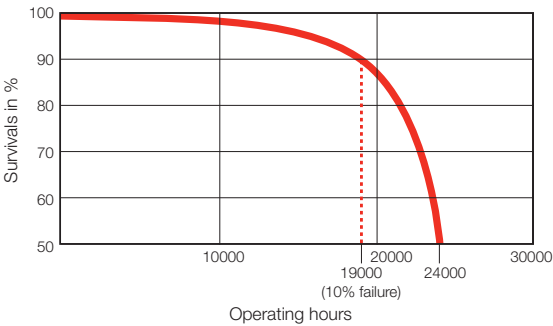
There have been significant developments in long life fluorescent lamps, where currently available a full range of long life lamps are listed on the following pages

A summary of typical fluorescent lamp life shows the potential to extend the time between planned maintenance cycles

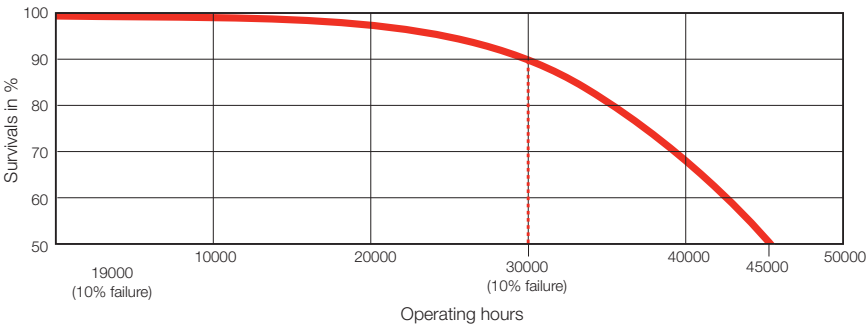
TYPICAL LAMP LIFE LIFE

Lamp Type	Standard (hrs)	Long Life (hrs)
TC-D	12,000	33,000
TC-L	20,000	36,000
T8	19,000	55,000
T5	24,000	45,000

The life expectancy graphs show the potential extended life when selecting T5 lamps:



Life expectancy (IEC 60901) – Standard Lamps (T5)



Life expectancy (IEC 60901) – Long Life Lamps (T5)

Using occupancy and usage figures, a comparison can be made in the following installations. It can be seen that by installing long life lamps maintenance cycles can be drastically reduced.

Typically these are:

Location	Yearly Usage	Planned Maintenance Cycle (Based on 10% failure)	
		Standard Lamp	Long Life Lamp
Office	3000 hrs	6 yrs	10 yrs
Education	2000 hrs	9 yrs	15 yrs
Healthcare	7000 hrs	2 yrs	4 yrs
Retail	5000 hrs	3 yrs	6 yrs