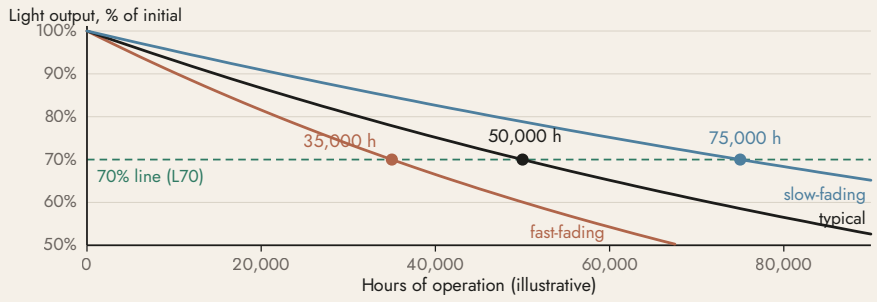
LED lifespan, *L70* and lumen maintenance

The terms L70, B10 and B50 in plain words, why a declared life is not a guarantee, hours turned into years at four daily patterns, and a method and record for planning replacement. It gives no lifetime and no spare percentage.

AT A GLANCE

Term	What it means	Where it comes from	Watch for
L70	Hours until light output has fallen to 70 per cent of its initial value	NREL/DOE guide (2010)	70 per cent is a convention, not a point where a room looks wrong
B50 and B10	B50: half of a population of units has reached that point by then. B10: no more than one in ten has	IEC 62722-2-1:2023, clause 3.3 (LxBy)	B10 is the earlier, cautious time for a hotel
L70B50	Both together, in hours. The Regulations ask for it on the packaging of an LED light source	SI 2021/1095 Sch 3 para 6(2)(e)	Source packaging: check it also covers the fitting as installed
Operating units only	The IEC definition counts working units and does not account for replaceability	IEC 62722-2-1:2023, clause 3.3 notes 1 and 2	Driver failures are a separate risk; ask if parts can be replaced on site
Rated ambient (tq)	The highest room temperature at which the rated performance holds, declared by the maker	IEC 62722-2-1:2023, clause 3.2	A hot, closed fitting is not the lab condition

Definitions are from IEC 62722-2-1:2023 (clauses 3.2 and 3.3), the NREL/DOE guide (2010) and SI 2021/1095 Sch 3. A declared life is the maker's claim, not a guarantee.



L70B10: the time when the fastest 1 in 10 units have crossed the line. L70B50: when half have. Units that fail outright are not counted in either.

Three LED units fading at different rates, with the 70 per cent line. The curves are an assumed shape for illustration, not product data. Original drawing by Make Bespoke Studio.

HOURS INTO YEARS

Years = rated hours / (hours per day x 365). At 8, 12, 16 and 24 hours a day: 35,000 hours gives 12.0, 8.0, 6.0 and 4.0 years; 50,000 hours gives 17.1, 11.4, 8.6 and 5.7 years. These are years to the rated point for a typical unit, not a service guarantee.

SIX STEPS TO PLAN SPARES

1 Count modules and drivers by reference. 2 Ask for the declared life with its temperature and drive current, and the test basis. 3 Keep drivers apart from modules. 4 Hold spares from one colour batch. 5 Ask what happens if a module is discontinued. 6 Set review points against the declared life and record hours run.

SPECIFICATION WORDING

DECLARED LIFE

For each fitting tag the maker is to declare the LED module and driver references, the declared lumen maintenance life as L[70]B[50] in hours [ ] (and L[70]B[10] [ ] where requested) with the rated ambient performance temperature [ ] degrees Celsius and drive current [ ] mA it applies to, the test basis (module test report and projection method, or luminaire test) [reference], and the lowest and highest dimming levels the figure covers. The figure is a declaration, not a guarantee, and is to be repeated in the care and maintenance sheet.

REPLACEABILITY

LED modules [and drivers] are to be replaceable on site without damaging glass, metalwork or finish, by [a competent electrician / maintenance team], through [the access shown on the shop drawing]. The maker is to state the replacement procedure and the isolation point, and to confirm the module and driver can be purchased for at least [ ] years after handover or name the replacement route.

SPARES AND RECORD

Spares of [modules] [quantity] and [drivers] [quantity] from the same colour batch [date code] are to be supplied with [the delivery] and listed in the handover pack with location, references and declared life. The operator is to record hours run and the date of each replacement against the fitting tag.

TERMS USED

L70

The time at which an LED has dropped to 70 per cent of its original light output; B50 means half of a batch will have done so by then. Neither is a guarantee of life.

Useful life (LxBy)

In IEC 62722-2-1, the time until at most y per cent of a population of operating luminaires have fallen to x per cent of their initial light. It counts operating units only and ignores replaceability.

Driver

The electronic power supply that converts mains to the current an LED needs. It has its own life, separate from the LED source.

STANDARDS AND SOURCES

- IEC 62722-2-1:2023 Edition 2.0, Luminaire performance, LED luminaires: scope and clause 3 read in a preview, 7 Nov 2026; confirm the edition.
- SI 2021/1095 Lighting Products Regulations 2021, Sch 3: para 6(2)(e), Table 5; read 7 Nov 2026.
- NREL/DOE, Guide to Evaluating LED Lumen Maintenance (2010): L70 definition; outdoor products; dated.
- BS EN 62717:2017+A2:2019, LED modules for general lighting: Current per listings; not read.
- IES LM-80 and IES TM-21: named only; neither read; confirm editions.

Full guide: https://makebespoke.com/trade/technical/led-lifespan-and-lumen-maintenance. Make Bespoke Studio coordinates manufacture through its partner workshops. Figures are guidance only and your specification governs; some may be superseded, so contact the studio to verify.