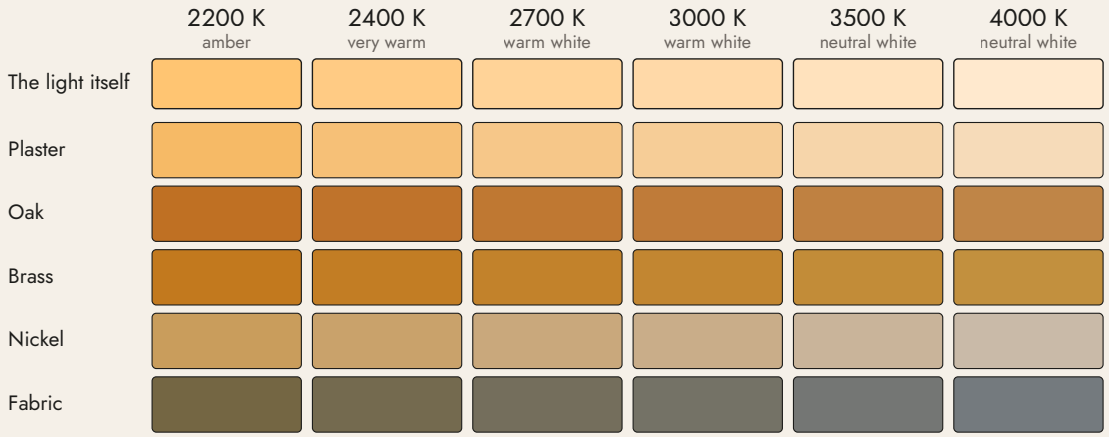
Colour temperature *by space*

Colour temperature by hotel and restaurant space, what 2200 K to 4000 K looks like, how warm-dim works, and how to fix tolerance, curve and consistency in the specification.

AT A GLANCE

Space or point	Common range (K)	Basis	Note
Lobby, lounge, bar, restaurant and spa in the evening	2200 to 2700	Our hotel lighting article and hospitality lighting page; common practice	Where guests linger. Dim-to-warm helps (below)
Daytime dining and breakfast	2700 to 3000	Common practice	A little whiter for daytime service. Designer's choice
Guestroom	2700 or below	Our hotel lighting article	Where people sleep
Bathroom mirror and grooming	About 3000	Our joinery pages use 3000 K for dressing lighting	Colour rendering matters more than the kelvin figure
Corridors	Match the rooms they serve, commonly 2700	Common practice	The risk is a visible change at the door
Joinery interiors: cabinets, wardrobes, libraries	2700 to 3000	Our joinery pages	Match the room's other light
Back of house and kitchens	3000 to 4000	US ENERGY STAR: 3500 to 4100 K "good for kitchens and work spaces"	Function over mood
Tolerance between fittings	State the SDCM step or the bin, not only the kelvin	US DOE: a 7-step ANSI bin can span about 14 steps	Specify and test on a mock-up
Dim-to-warm LED	2700 to 3000 at full output, about 1800 at the lowest	US DOE	Check colour rendering at the lowest setting

Kelvin. There is no standard for these ranges: they are common practice, shown with where they come from. A lighting designer sets the figure for each room. SDCM is standard deviation of colour matching.



Illustrative only. Shown at about half the shift a fixed-white-balance camera would record, because the eye adapts. Computed from Planck's law, uncalibrated. Surface colours are typical examples.

Light from 2200 to 4000 K, and five materials under each, at about half the strength a fixed-white-balance camera would record. Computed from Planck's law, uncalibrated, illustrative: confirm on real samples under the real lamp. Original drawing by Make Bespoke Studio.

SPECIFICATION WORDING

COLOUR TEMPERATURE AND TOLERANCE

Nominal correlated colour temperature [2700] K at full output for every light source visible in [space], within [3] SDCM (MacAdam steps) of nominal, and within Duv [ ] of the black-body line. Colour rendering not less than Ra [ ] and R9 [ ]. Maker to declare the colour bin and supply the test report for each fitting family.

DIM-TO-WARM CURVE

Dim-to-warm [required / not required]. Colour temperature to follow this curve, measured on a sample before production: [2700] K at 100 per cent, [2400] K at 50, [2000] K at 10, [1800] K at the lowest level, each within [ ] K. The same curve for every fitting in [space], on the [DALI / phase-cut] control in the dimming schedule.

MIXED FITTINGS IN ONE SPACE

Pendants, wall lights, joinery lighting and any strip lighting visible together in [space] to come from [one bin / one batch] or to be matched on a mock-up at [100 / 50 / 10] per cent. Spares of [ ] per cent to be supplied from the same bin, labelled with the bin and batch, and recorded on the schedule. Replacement lamps and modules to be ordered by that record.

MOCK-UP AND APPROVAL

One of each fitting family to be lit together in a mock-up at the evening scene and at the lowest dimming level, with the real finishes and fabrics nearby. Colour temperature and chromaticity to be measured with a calibrated [colorimeter / spectrometer] and recorded. Approved in writing by [name] before production.

TERMS USED

Correlated colour temperature (CCT)

The temperature, in kelvin, of the black-body radiator whose colour is nearest to the light's colour. Lower is warmer and more orange; higher is whiter and bluer (CIE S 017:2020, e-ILV 17-23-068).

SDCM (MacAdam steps)

Standard deviation of colour matching: steps of the MacAdam ellipse, an experimentally derived measure of how far apart two colours must be to be told apart. One step is about 0.001 in u′v′ chromaticity (US DOE, PNNL).

Dim-to-warm

An LED product whose colour temperature falls as it is dimmed, imitating a filament lamp. DOE report: about 2700 K at full output down to 1800 to 2200 K in the products tested.

Duv

How far a light's colour lies from the black-body line. It can differ between products at the same CCT, which is why two fittings of the same kelvin can look different (US DOE).

STANDARDS AND SOURCES

- US ENERGY STAR, colour temperature chart (May 2018): descriptors for 2200 to 6500 K, read 5 Nov 2026. US consumer-level guidance.
- CIE S 017:2020 International Lighting Vocabulary (e-ILV): entry 17-23-068, correlated colour temperature, read 5 Nov 2026.
- US DOE: Dim-to-Warm LED Lighting stress testing (RTI, January 2020); Understanding LED Color-Tunable Products; PNNL (Royer), Chromaticity Adrift (2015): dim-to-warm, Duv, MacAdam steps, ANSI bins, colour shift, read 5 Nov 2026.
- BS EN 12464-1, ANSI C78.377 and IEC 62386-209: named, paywalled, not read: confirm against the current editions.

Full guide: https://makebespoke.com/trade/technical/colour-temperature-by-space. 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.