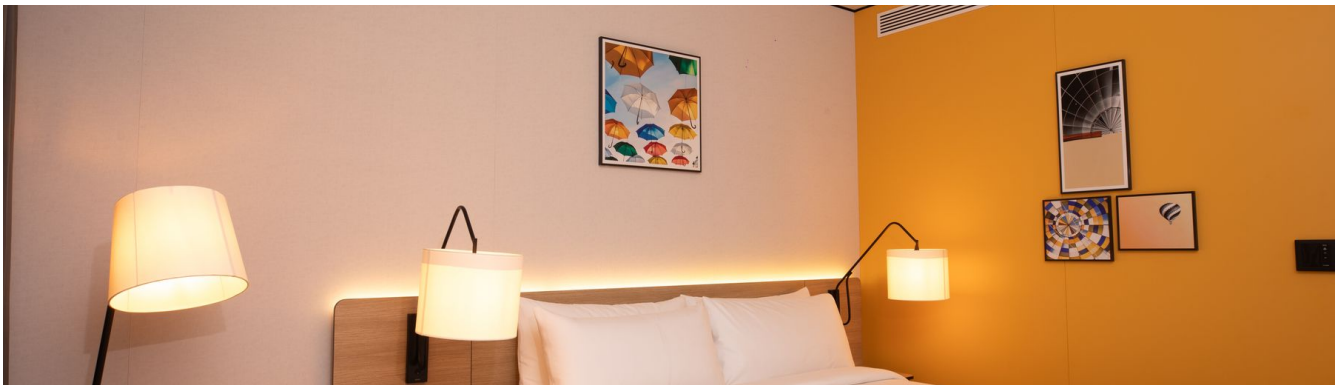
FIELD NOTES 03 / COLOUR & MATERIALS

Choosing CCT and colour quality

Specify how light looks and how it renders materials as two related but different decisions.



Two luminaires can share a nominal colour temperature and still make a room look different. Selecting a light source therefore requires more than choosing a Kelvin value from a catalogue. Review the appearance of the light, the rendering of finishes and the consistency between fittings in the actual scene.

Separate CCT from colour rendering

Correlated colour temperature (CCT), expressed in kelvin, describes the warm-to-cool appearance of a white light source. Colour rendering describes how object colours appear under that source. A warmer CCT does not automatically mean better rendering, and a higher CRI does not identify the preferred CCT for a room. [1]

Look beyond a single rating

CRI is useful, but it does not tell the complete colour story. Request relevant colour data and review material samples. TM-30 provides several related measures and graphics, offering a broader view of colour rendition than one score. Use the information to support a design decision rather than treating the largest number as the best visual result. [2]

Specify the behaviour through dimming

Fixed-white, dim-to-warm and tunable-white products behave differently. Dim-to-warm links a reduction in output with a warmer appearance; tunable-white products can offer separate adjustment of white-light colour and output. Confirm the actual supported range and control method. Test colour appearance at the low levels that will be used in the finished space. [3]

FIELD NOTES 03 / IN PRACTICE

A sample review matrix

Decision	What to request	What to inspect
White-light appearance	Nominal CCT and colour consistency information	Adjacent fittings on the same finish.
Material rendering	CRI and relevant detailed colour data, including TM-30 when available	Skin tones, wood, stone, fabrics and brand colours.
Dimming behaviour	Minimum output and colour-control characteristics	Low scenes as well as full output.
Replacement strategy	Approved product and colour specification	Consistency after future replacements.

Worked example: choosing light for warm stone

Place the real stone, timber and fabric samples together. Compare candidate sources at similar illuminance and from the same viewing position. Start with 2700K and 3000K for an intentionally warm concept, then include a more neutral option if the design needs it. Record what happens to the materials, not just which sample looks brighter. This is a mock-up method, not a prescribed CCT range for all interiors.

Project checklist

- Approve a physical sample rather than relying only on screen images.
- Keep sample illuminance and viewing conditions comparable.
- Review neighbouring products for visible colour mismatch.
- Check low-output colour and dimming transitions.
- Record the accepted product, CCT and control settings in the schedule.

A website CCT preview can communicate a design direction, but it cannot reproduce a product's spectrum or the interaction with real finishes. Use it to begin the conversation; use documented product data and a physical mock-up to approve the final lighting selection.

Sources & further reading

[1] U.S. Department of Energy, LED Basics

[2] U.S. Department of Energy, TM-30 Frequently Asked Questions

[3] U.S. Department of Energy, Understanding LED Color-Tunable Products

Sources checked 2 November 2026. Original practical guidance by OMEGALUX Studio; examples are illustrative. Confirm project criteria against the governing standards and approved product information.