COLOR TEMPERATURE AND COLOR RENDERING

There are two standard measurements for the color characteristics of light: “color rendering index” (CRI), a term used to describe the extent to which an artificial light source is able to render the true color of objects as seen by natural outdoor sunlight which has a CRI of 100, and “color temperature”, which expresses the color appearance of the light itself.

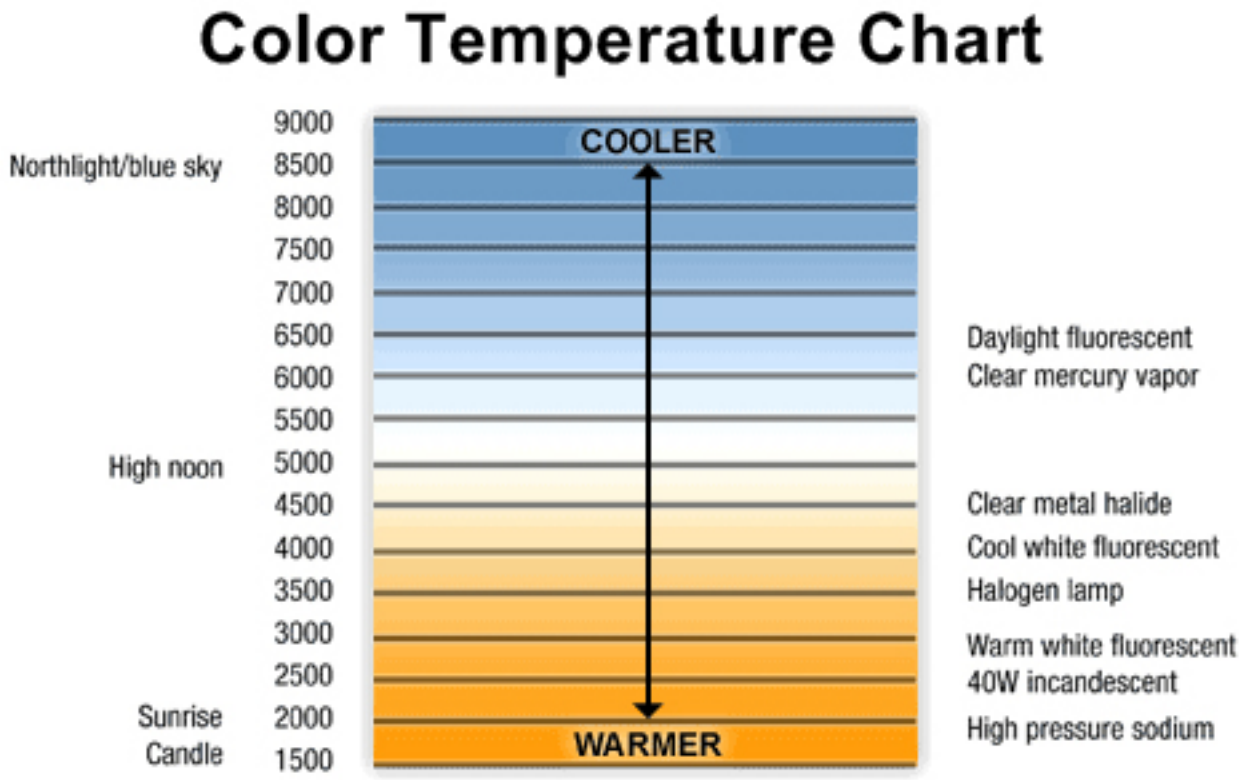
Color Rendering Index: Incandescent is used as the base reference of 100 CRI. Compact fluorescent lamps are graded at 82-86 CRI, which is considered high quality color rendering. CRI is a more important consideration for retail lighting design than it is for office lighting.

Any CRI rating of 80 or above is considered high and indicates that the source has good color properties. Incandescent lamps and daylight have a CRI of 100, the highest possible CRI. The higher the CRI of the light source, the “truer” it renders color.

Color Temperature: Refers to the way color groups are perceived – the psychological impact of lighting. Color temperature is how cool or warm the light source appears.

The color temperature of a light source is a numerical measurement of its color appearance. This temperature is based on the principle that any object will emit light if it is heated to a high enough temperature and that the color of that light will shift in a predictable manner as the temperature is increased. This system is based on the color changes of a black metal as it is heated from a cold black to a white hot state. As the temperature increases, the color would shift gradually from red to orange to yellow to white and finally to a blue white. Color temperature is measured in degrees Kelvin (K). Colors and light sources from the red/orange/yellow side of the spectrum are described as warm (incandescents) and those toward the blue end are referred to as cool (natural daylight).

The sun, for example, rises at approximately 1800 Kelvin and changes from red to orange to yellow and to white as it rises to over 5000 Kelvin at high noon. It then goes back down the scale as it sets.



COLOR TEMPERATURE - COMMON APPLICATIONS

Kelvin	Associated Effects & Moods	Appropriate Applications
2700°	Friendly, personal, intimate	Homes, libraries, restaurants
3000°	Soft, warm pleasing light	Homes, hotel rooms and lobbies, restaurants, retail stores
3500°	Friendly, inviting, non-threatening	Executive offices, public reception areas, supermarkets
4100°	Neat, clean, efficient	Office, classrooms, mass merchandisers, showrooms
5000°	Bright, alert	Graphic industry, hospitals
6500°	Bright, cool	Jewelry stores, beauty salons, galleries, museums, printing