



Fail-safe LED Spec Checklist

Avoid LED specification mistakes and misunderstandings.

LEDs are here to stay and, with the right specification, can enhance a project's aesthetics, lighting and energy performance, and sustainability.

- 1. Specify the color temperature that matches the application.**
Also consider the color of other lighting and materials in the same space.
- 2. Confirm that the LED CCT is within 3 MacAdams Ellipses.**
To avoid inconsistent color from LEDs, make sure the CCT (Correlated Color Temperature) measurements are within three-step MacAdams Ellipses. Within that range, color changes are imperceptible to the human eye.
- 3. Specify minimum 80 CRI out of 100.**
Color Rendering Index (CRI): the widely accepted metric for how well a light source renders color. 80 CRI, or better, is ideal for most general interior lighting applications.
- 4. Select products with a 5 year warranty on their LED boards.**
Specify an LED luminaire that has an LM-80 rated lumen maintenance of at least 50,000 hours to L70 levels. LM-80 life testing should be conducted at 25°C.
- 5. Insist upon LM-79 photometric testing.**
LM-79 is the IES-approved method that measures absolute photometry of the complete systems including: luminaires, LEDs, ballast/driver and thermal management components.
- 6. Specify the lumen output of the luminaire.**
The Lumen is the best metric to describe the amount of light a source or luminaire emits. Luminous efficacy is the best measure of an LED source's effectiveness in converting electrical energy into light energy and is measured in lumens per Watt.
- 7. Choose the dimming protocol that matches your dimming system.**
Each dimmer may have varying features that will affect flicker and minimum load requirements. Also, the dimming range of a single product may vary, based on what control is used.
- 8. Choose the optics that suit the application.**
Typically, LEDs have a lambertian distribution pattern with a beam spread of 120 degrees. Optics placed over LEDs have the ability to shape the beam.
- 9. Confirm that the thermal management is being handled effectively.**
Poor heat management is the downfall of good LEDs. Always confirm that the luminaire manufacturer you are dealing with has done their "homework".