Every time you see anything regarding LEDs, it is always stated that they have a 100,000 hour life expectancy. This implies that you can just install them and forget about them for more than 11 years of continuous use. This claim is so common that most people have come to accept it as hard fact.

The reality is quite different... A 5mm epoxy UV LED working at full current and an elevated temperature, may have its output decreased to 50% in less than 1,000 hours... In architectural lighting applications, where maintenance and energy costs are important, a superior choice is still Cold Cathode lamps.

Let’s compare typical white LEDs with 25m diameter warm white Cold Cathode lamps for general illumination applications. The table below shows the typical performance ranges for both.

<table>
<thead>
<tr>
<th>Cold Cathode</th>
<th>Typical White LED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lumens per Watt</td>
<td>105 to 124 lumens/watt</td>
</tr>
<tr>
<td>Lumen Maintenance</td>
<td>&lt; 0.2% loss per 1,000 hours</td>
</tr>
<tr>
<td>Typical Lamp Life</td>
<td>50,000 to 100,000 or more hours</td>
</tr>
<tr>
<td>Color Uniformity</td>
<td>Consistent over tube length</td>
</tr>
<tr>
<td>Cost per Lumen</td>
<td>$ 0.02 to $ 0.03 per lumen</td>
</tr>
</tbody>
</table>

LEDs are here to stay for specialty lighting applications, but are not necessarily the best answer to most lighting needs. When looking at a data sheet or specifications for LEDs, what is left out can be more important than what is put in. Do your homework carefully.

Cold Cathode lamps are a mature, proven technology with many benefits. When all key issues are taken into account, it is clear that Cold Cathode lamps still have much to offer over LEDs.

Source: Dan Watts
Mr Watts is an independent technical consultant and circuit design engineer. He has over 50 years of electrical engineering experience. Much of his design work has focused on power supplies and ballast design for the lighting industry. He served as Director of Engineering for three years at Micro Lamps Inc., a supplier of premium LEDs and other light sources. He has presented numerous papers at national lighting conferences.