how to choose a good LED luminaire
LED has become the new synonym for a sustainable & green lighting solution and a way of life across indoor and outdoor spaces. With growing demand in the market and multiple manufacturers offering a variety of LED solutions, the market is moving at a rapid pace. In such a scenario, it becomes important to know the key promoters in technology and have an evaluation system which would help the users in choosing a right LED lighting solution.

LED advantages

colour
LEDs can emit light of an intended colour without the use of colour filters. This is more efficient and can lower initial costs.

cool light
LEDs radiate very little heat in the form of IR that can cause damage to sensitive objects or fabrics. Wasted energy is dispersed as heat through the base of the LED.

efficiency
LEDs produce more light per watt than most of the light sources.

toxicity
LEDs do not contain mercury, unlike fluorescent lamps.

shock resistant
LEDs, being solid state components, are difficult to damage with external shock.

lifetime
LEDs can have a relatively long useful life of 50,000 burning hours at rated Junction temperature.

Key parameters in choosing a good LED luminaire

- LED
- driver
- thermal management
- optics
- design & aesthetics

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LEDs from countries known for technology and advancement in engineering are more reliable. The LED manufacturer’s years of operation and patents held, signifies its contribution in transforming the LED technology.

Quality of LED (Binning for consistent colour, lumen output & forward voltage)

Binning refers to classification of production yields. The smaller the binning tolerance the better the performance and higher the cost.

LEDs are generally binned for 3 parameters:
- Lumen Output - for high consistency and reliability
- Forward Voltage - ensures better performance and long life.
- Colour temperature - maintains uniform colour appearance.

High lumen output

LEDs with higher lumen output help in giving the right light along with significant savings in energy. An LED should have a minimum efficacy of 130 lumens/watt.

Right colour temperature

A right color temperature choice is important so as to best suit the application area. LEDs complying to McAdam 3 or 5 (SDCM) Standard Deviation of Color Matching ensure the best quality, consistency in color and hence better reliability.

Compliance to LM80, L70

LM80 standard is as per IESNA guidelines and is a worldwide accepted standard for qualifying the Life of LEDs.

Any LM80 compliant LEDs ensure functional life and is known to increase the reliability index of the luminaires.

Total system lumen package

While choosing the right LED Luminaire focus should be on total lumen package delivered by luminaire and not on wattage of the luminaire. Appropriate lighting levels are achieved by choosing LED luminaires delivering required system luminous at optimum system wattage and users may not have to compromise on key parameters like LPD (Light Power Density), uniformity etc.
The driver should be able to operate in fluctuating supply conditions and provide adequate immunity to line transients like spikes and surges.

The multistage isolated driver avoids interference between the input and output, thereby protecting the LEDs. Precision CCCV operation of LEDs improves reliability and low harmonics ensure lower impact and ill effects on the electrical system.

Use of high quality components ensure efficient operations and long life of the driver (atleast 40000 burning hours).

A driver needs to have protection against over voltage, surge, short circuit etc as the input power supply quality is not very stable and good.

Driver should be designed to comply with safety and performance standards for reliable operation and long service life.
Light output from the LED luminaire depends on overall working of luminaire temperature. At higher ambient temperature a well designed thermal management system ensures, the working temperature in the luminaire does not go beyond specified levels to ensure a consistent light output.

The heat generated at the LED junction needs to be vented out by an appropriate heat dissipation mechanism. Non dissipation of the heat would result in a lower light output and reduced LED life.

Luminare design should ensure that the junction temperature in LEDs is always below specified temperature by the LED manufacturer to maximise LED life and luminaire performance.

thermal management
for efficient system and good component life

01 thoughtful design for ambient conditions
02 effective heat dissipation mechanism
03 maintained junction temperature

reliable system efficiency maintenance free operations
LEDs are point devices and hence there is a certain amount of glare they can create. Well designed optics used in the LED luminaires not only control the glare but also act as a right channel for a better distribution of light resulting in high optical efficiency.

High efficiency diffusers with good transmissivity ensure uniform and soft distribution of light that help create well lit and pleasant ambiances.
Innovation and design form the core of any product development process. Thoughtfully designed luminaires enhance the ambience of any indoor or outdoor space. Good and minimalistic design turn the environment even more contemporary and meets the ever evolving market needs and requirements.

Products from a company with a significant experience are time tested and reliable. An experienced company has a proven product development process, which helps in rolling out efficient products coupled with latest technology.

The relevance of a technology is measured by its scale of adoption. Companies which innovate with new technologies are more likely to provide better solutions.
Country of origin and Make
Quality of LEDs (Binning)
Lumen output
Colour temperature consistency
Compliant to LM80 standard
System lumens of LED luminaire

Compatibility with electrical environment
Multistage isolated driver
Useful system life
Protection against voltage surges
Compliance with safety and performance standards

Design for varying ambient temperatures
Effective heat dissipation mechanism
Maintaining junction temperature within specified limits

Uniform and glare free lighting
Good volumetric lighting
Optical efficiency

MCPCBs for high wattage LED luminaires for better heat dissipation
In all products junction temperature is maintained well below the maximum specified limit
Luminaires can operate in varied ambient conditions (upto 45º C)

HET (High Efficiency Translucence) or LGP (Light Guide Panel) technology in most of the indoor luminaires
Uniform and glare free lighting experience with reduced LPD in indoor luminaires
Volumetric distribution for good lighting and safety

Best in class LED technology from Japan
High lumen output of minimum 130 lm/watt
LM80 compliant LEDs
Strict adherence to lumen output and colour temperature

Conforms to relevant international standards
Constant Current & Constant Voltage (CCCV) driver
2/3 stage isolated drivers
Good design and quality components for a long service life
Designed and manufactured in India especially for Indian power conditions

What Wipro Offers
Key parameters’ check list

Innovative design
Latest technology
Form and function
Trusted brand

Innovative designs aligned with latest technology
Over 20 years of experience and expertise in lighting design