## DESIGNIIGHTS

Updated September 28, 2010

## Technical Requirements Table v1.5

| Application | Minimum Light Output | Zonal Lumen Requirements | Minimum Luminaire Efficacy | Allowable CCTs <br> (ANSI C78.377-2008) | Minimum CRI | Minimum LED Lumen Maintenance at $6000 \mathrm{hrs}^{1}$ | Minimum Luminaire Warranty |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1. Outdoor Pole/ArmMounted Area and Roadway Luminaires | 1,000 lm | $=100 \% 0-90^{\circ},<10 \% 80^{\circ}-90^{\circ}$ | $50 \mathrm{~lm} / \mathrm{W}$ | <6500K | 50 | 95.8\% | N/A |
| 2. Outdoor Pole/ArmMounted Decorative Luminaires | 1,000 lm | $95 \% 0^{\circ}-90^{\circ}$ | 40 lm/W | <6500K | 50 | 95.8\% | N/A |
| 3. Outdoor Wall-Mounted Area Luminaires | 300 lm | $=100 \% 0^{\circ}-90^{\circ},<10 \% 80^{\circ}-90^{\circ}$ | 40 lm/W | <6500K | 50 | 95.8\% | N/A |
| 4. Parking Garage Luminaires | 2,000 lm | $\geq 20 \% 60-70^{\circ}, \geq 15 \% 70-80^{\circ}$ | $56 \mathrm{~lm} / \mathrm{W}$ | <6500K | 50 | 95.8\% | N/A |
| 5. Fuel Pump Canopy | 2,000 lm | $\geq 40 \%: 0^{\circ}$ to $40^{\circ} ; \geq 40 \%: 40^{\circ}$ to $70^{\circ}$ | $56 \mathrm{~lm} / \mathrm{W}$ | <6500K | 50 | 95.8\% | N/A |
| 6. Track or Mono-point Directional Lighting Fixtures | 250 lm | $\geq 85 \% 0^{\circ}-90^{\circ}$ | 30 lm/W | $2700 \mathrm{~K}, 3000 \mathrm{~K}, 3500 \mathrm{~K}, 4000 \mathrm{~K}$, 5000 K | 75 | 95.8\% | N/A |
| 7. Refrigerated Case Lighting | $\begin{gathered} \text { Center-mounted*: } \\ >=100 \mathrm{~lm} / \mathrm{ft} \\ \text { End-mounted**: } \\ >=50 \mathrm{~lm} / \mathrm{ft} \end{gathered}$ | $\geq 95 \%$ : $10^{\circ}$ to $90^{\circ}$ | $35 \mathrm{~lm} / \mathrm{W}$ | 2700K, 3000K, 3500K, 4000K, 4500K, 5000K | 70 | 95.8\% | 5 years |
| 8. Display Case Lighting | $\begin{aligned} & \text { End-mounted**: } \\ & =50 \mathrm{~lm} / \mathrm{ft} \end{aligned}$ | $\geq 95 \% 0-80^{\circ}$ | $35 \mathrm{~lm} / \mathrm{W}$ | 2700K, 3000K, 3500K, 4000K, 4500K, 5000K | 75 | 94.1\% | 3 years |
| 9. Linear Panels ( $2 \times 2$ Troffers ONLY) | >3000 lm | $\geq 50 \% 30^{\circ}-60^{\circ}$ : | $55 \mathrm{~lm} / \mathrm{W}$ | 2700K, 3000K, 3500K, 4000K, 4500K, 5000K | 80 | 94.1\% | 3 years |
| 10. High-bay and Low-bay fixtures for Commercial and Industrial buildings | >10000 lm | $\geq 30 \% 20^{\circ}-50^{\circ}$ | 60 lm/W | 2700K, 3000K, 3500K, $4000 \mathrm{~K}, 4500 \mathrm{~K}, 5000 \mathrm{~K}$, 5700K, and 6500 K | 70 | 94.1\% | 3 years |
| 11. High-bay-Aisle Lighting | >10000 lm | $\begin{aligned} & \geq 50 \% 20^{\circ}-50^{\circ} \\ & \geq 30 \% 0^{\circ}-20^{\circ} \end{aligned}$ | $60 \mathrm{~lm} / \mathrm{W}$ | 2700K, 3000K, 3500K, 4000K, 4500K, 5000K, 5700K, and 6500 K | 70 | 94.1\% | 3 years |

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Source for Outdoor Specs- DOE ENERGY STAR® Eligibility Criteria - Version 1.1 December 19, 2008 (www.drintl.com/temp/ENERGYSTAR_SSLCriteria V1 1.pdf)
*Bilateral, symmetric light distribution on two hemispheres
**One-sided, single hemisphere light distribution
${ }^{1}$ Lumen Maintenance - LM-80 thresholds-explanation is on the second page The DLC uses a pass/fail threshold for lumen maintenance compliance, as established in the Energy Star Manufacturer's Guide v2 pg. 7 (http://www.energystar.gov/ia/partners/manuf_res/downloads/ENERGYSTAR_Manufacturers_Guide_v2.pdf). The requirements differ for applications
requiring 35,000 hours of useful life and those requiring 50,000 hours, as follows:

| Application required minimum useful life (L70) | Required lumen maintenance at 6,000 hours |
| :--- | :--- |
| 35,000 hours | $94.1 \%$ |
| 50,000 hours | $95.8 \%$ |

These percentages result from solving an exponential decay function for 35,000 and 50,000
hours, respectively, to determine the minimum lumen maintenance necessary to achieve thos
thresholds.

## Designlights ${ }^{\text {TM }}$ Consortium Qualified Product List

## Product Family/Grouping Clarifications

## Introduction

 represent a whole family of different models such as "ROADWAY-TYPE2-xxx-xxxMA-xxxK-xxx" with undefined accessory options.
 The "family model" exterior housing has a different color
2. The "family model" uses the same LED chip model as the submitted model but the LED chip has a different phosphor that produces a higher CCT value than the submitted model
3. The "family model" is a refrigerated case end mounted fixture that is symmetric with the opposite end mounted fixture. (e.g. If the application is for the right end fixture, the left end fixture is a family member.)

 lowest performance of the product family.

## Examples

 current of 700 mA .

Below are a few examples of fixture models that can be included as "family model" for the submitted model:

- ROADWAY-TYPE2- XYZ-700MA-5000K-WHT (only differ in exterior color)
- ROADWAY-TYPE2- XYZ-700MA-6000K-BLK (only higher CCT)

Below are a few examples of fixture models that can not be included as "family model" for the submitted model:

- ROADWAY-TYPE3- XYZ-700MA-5000K-BLK (different light distribution)
- ROADWAY-TYPE2- ABC-700MA-5000K-BLK (different LED chip model, leading to different optical and electrical performance that may be worse than the submitted model)
- ROADWAY-TYPE2- XYZ-350MA-5000K-BLK (different drive current)
- ROADWAY-TYPE2- XYZ-700MA-4000K-BLK (CCT lower than submitted model)
- ROADWAY-TYPE2- XYZ-700MA-5000K-BLK-DoubleLEDs (a different number of LED chips)


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## 2 Zonal Lumen Tolerance Table

| Category | Zone (degrees) | Nominal Requirement (\%) | Tolerance (\%) | Actual Requirement (\%) |
| :---: | :---: | :---: | :---: | :---: |
| 1 | $0-90$ | 100 | 0 | 100 |
|  | $80-90$ | $<10$ | 3 | $<13$ |
| 2 | $0-90$ | $>=95$ | -3 | $>=92$ |
| 3 | $0-90$ | 100 | 0 | 100 |
|  | $80-90$ | $<10$ | 3 | $<13$ |
| 4 | $60-70$ | $>=20$ | -3 | $>=17$ |
|  | $70-80$ | $>=15$ | -3 | $>=12$ |
| 5 | $0-40$ | $>=40$ | -3 | $>=37$ |
|  | $40-70$ | $>=40$ | -3 | $>=37$ |
| 6 | $0-90$ | $>=85$ | -3 | $>=82$ |
| $7-$ center | $0-80$ | $>=95$ | -3 | $>=92$ |
| $7-$ end | $0-80$ | $>=95$ | -5 | $>=90$ |
| 8 | $0-80$ | $>=95$ | -5 | $>=90$ |
| 9 | $30-60$ | $>=50$ | -10 | $>=40$ |
| 10 | $20-50$ | $>=30$ | -10 | $>=20$ |
| 11 | $20-50$ | $>=50$ | -10 | $>=40$ |
|  | $0-20$ | $>=30$ | -10 | $>=20$ |

