



COOLEEDGE™

# COOLEEDGE SPECIALTY ILLUMINATION SOLUTIONS: SIZE FACTOR TABLES

The information provided below is to be used for calculating illuminance levels in conjunction with photometric (IES format) files provided by Cooledge for standard configurations of Specialty Illumination Solution ("SIS") products.

## BACKGROUND

The light output from a Cooledge Specialty Illumination Solution is dependent on both its size and mounting configuration. The efficacy of a Specialty Illumination Solution increases as the size increases and the mounting configuration has some impact on the boundary conditions.

## HOW TO USE THE SIZE FACTOR TABLES

Cooledge Specialty Illumination Solution IES files provide data for the following:

- “Luminaire” size = 12” x 12” (305mm x 305mm); this is base unit of area for calculations - ie. the values apply to a 12” x 12” area that is a segment of a larger area of at least 4’ x 4’ (1.2m x 1.2m) in size.
- Values are based on a luminous surface area = 10’ x 10’ (3m x 3m); equivalent to 100 “luminaires” arranged in a 10 x 10 pattern

### Calculation Procedure

1. Determine the number and layout of the Cooledge Specialty Illumination Solutions that will be used to illuminate the space
2. Choose the IES file that matches the Specialty Illumination Solution chosen defined by:
  - Mounting configuration – flush mount, suspended, surface mount
  - CCT – 2700K, 3000K, 3500K, 4000K, 5700K; for Tunable White, Cooledge recommends choosing the 2700K IES file to ensure the maximum power consumption is considered.
  - Flux level – high, medium, low
3. For Specialty Illumination Solutions with dimensions smaller than 10’ x 10’ (3m x 3m) refer to the Size Factor Table and choose the factor that is closest to the Length x Width (LXW) dimensions. Cooledge recommends considering an equivalent FABRICated Luminaire for smaller sizes.
4. Apply the Size Factor as a correction factor or by multiplying the “luminous flux” by the value in the table depending on the software you are using.
5. For Specialty Illumination Solutions with dimension equal to or larger than 10’ x 10’ (3m x 3m), the Size Factor = 1.00\* and does not need to be applied to the calculation.
6. Run the illuminance calculation using your modeling software as you would for a design utilizing traditional luminaires.

Cooledge SIS: Flush Mount

|                         |         | Solution Length - ft (m) |         |         |         |         |         |        |
|-------------------------|---------|--------------------------|---------|---------|---------|---------|---------|--------|
|                         |         | 4 (1.2)                  | 5 (1.5) | 6 (1.8) | 7 (2.1) | 8 (2.4) | 9 (2.7) | 10 (3) |
| Solution Width - ft (m) | 4 (1.2) | 0.95                     |         |         |         |         |         |        |
|                         | 5 (1.5) | 0.96                     | 0.97    |         |         |         |         |        |
|                         | 6 (1.8) | 0.96                     | 0.97    | 0.98    |         |         |         |        |
|                         | 7 (2.1) | 0.97                     | 0.98    | 0.98    | 0.98    |         |         |        |
|                         | 8 (2.4) | 0.97                     | 0.98    | 0.98    | 0.99    | 0.99    |         |        |
|                         | 9 (2.7) | 0.97                     | 0.98    | 0.99    | 0.99    | 0.99    | 0.99    |        |
|                         | 10 (3)  | 0.97                     | 0.98    | 0.99    | 0.99    | 1.00    | 1.00    | 1.00   |

Cooledge SIS: Suspended & Surface Mount

|                         |         | Solution Length - ft (m) |         |         |         |         |         |        |
|-------------------------|---------|--------------------------|---------|---------|---------|---------|---------|--------|
|                         |         | 4 (1.2)                  | 5 (1.5) | 6 (1.8) | 7 (2.1) | 8 (2.4) | 9 (2.7) | 10 (3) |
| Solution Width - ft (m) | 4 (1.2) | 0.87                     |         |         |         |         |         |        |
|                         | 5 (1.5) | 0.90                     | 0.92    |         |         |         |         |        |
|                         | 6 (1.8) | 0.91                     | 0.93    | 0.94    |         |         |         |        |
|                         | 7 (2.1) | 0.92                     | 0.94    | 0.95    | 0.96    |         |         |        |
|                         | 8 (2.4) | 0.93                     | 0.95    | 0.96    | 0.97    | 0.98    |         |        |
|                         | 9 (2.7) | 0.93                     | 0.95    | 0.96    | 0.98    | 0.98    | 0.99    |        |
|                         | 10 (3)  | 0.93                     | 0.96    | 0.97    | 0.98    | 0.99    | 1.00    | 1.00   |

\*Flush Mount table assumes a wall reflectance of 80%