CECD1-20-22

IECC: C405.3.1

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2024 International Energy Conservation Code [CE Project]

Revise as follows:

C405.3.1 Total connected interior lighting power. The total connected interior lighting power shall be determined in accordance with Equation 4-12.

$$TCLP = [LVL + BLL + LED + TRK + \underline{\text{Other}}] \quad \textbf{(Equation 4-12)}$$

where:

TCLP = Total connected lighting power (watts).

LVL = For luminaires with lamps connected directly to building power, such as line voltage lamps, the rated wattage of the lamp.

BLL = For luminaires incorporating a ballast or transformer, the rated input wattage of the ballast or transformer when operating that lamp.

LED = For light-emitting diode luminaires with either integral or remote drivers, the rated wattage of the luminaire.

TRK = For lighting track, cable conductor, rail conductor, and plug-in busway systems that allow the addition and relocation of luminaires without rewiring, the wattage shall be one of the following:

1. The specified wattage of the luminaires, but not less than 8 W per linear foot (25 W/lin m).
2. The wattage limit of the permanent current-limiting devices protecting the system.
3. The wattage limit of the transformer supplying the system.

Other = The wattage of all other luminaires and lighting sources not covered previously and associated with interior lighting verified by data supplied by the manufacturer or other *approved* sources.

The connected power associated with the following lighting equipment and applications is not included in calculating total connected lighting power.

1. Emergency lighting that is automatically off during normal operations.
2. Lighting in spaces specifically designed for use by occupants with special lighting needs, including those with visual impairment and other medical and age-related issues.
3. Casino gaming areas.
4. Mirror lighting in makeup or dressing areas used for video broadcasting, video or film recording, or live theatrical and music performance.
5. Task lighting for medical and dental purposes that is in addition to general lighting.
6. Display lighting for exhibits in galleries, museums and monuments that is in addition to general lighting.
7. Lighting in any location that is specifically used for video broadcasting, video or film recording, or live theatrical and music performance.
8. Lighting for photographic processes.
9. Lighting integral to equipment or instrumentation and installed by the manufacturer.
10. Task lighting for plant growth or maintenance.
11. Advertising signage or directional signage.
12. Lighting for food warming.
13. Lighting equipment that is for sale.
14. Lighting demonstration equipment in lighting education facilities.
15. Lighting approved because of safety considerations.
16. Lighting in retail display windows, provided that the display area is enclosed by ceiling-height partitions.
17. Furniture-mounted supplemental task lighting that is controlled by automatic shutoff.
18. Exit signs.

19. Antimicrobial lighting used for the sole purpose of disinfecting a space.
20. Lighting in sleeping units and dwelling units.
21. For exit access stairways, exit stairways and their landings, where the applicable building code or life safety code requires a minimum illuminance of 10 footcandles on the walking surface, the power in excess of the allowed power calculated according to C405.3.2.2, is not included.

Reason: IBC 2021 requires that: “along exit access stairways, exit stairways and their required landings, the illumination level shall not to be less than 10 fc (108 lux) at the walking surface when the stairway is in use.”
This is an exceptionally high light level for an exit stair, and 10 times greater than required by the IBC 2018. The current lighting power allowance for stairways is insufficient. In the limited case of the stairway itself, it would be impossible to meet the requirements of both the IBC and the IECC. This exception eliminates that conflict by permitting any **power in excess of the allowed power** associated with the lighting of the stair to be excluded from the lighting power density calculations.

This is similar to C405.5.1 exception #15 for exterior lighting, which was approved and is in PCD1.

Another solution was considered and studied but is not ready for inclusion in the code and is much more complex. It was concluded that the exclusion approach is the best at this time, and arguably could lead to better energy efficiency.

Cost Impact: The code change proposal will neither increase nor decrease the cost of construction.
Will not increase the cost of construction