

**DIVISION OF THE STATE ARCHITECT
GREEN BUILDING WORKSHOP
November 22, 2013 – Agenda Item 2a**

5.106.8 Light Pollution Reduction

- **Statement of specific purpose, problem, rationale and benefits:**

The proposed amendments are to clarify existing language. CBSC has received several calls from building officials and lighting designers asking for clarification of Table 5.106.8. CBSC requests interested parties and lighting experts participate during the workshop to assist CBSC with amendments to the existing language. *[Conflict or questions are listed in red below]*

[Clarify how the mounting height from the property line is addressed on a project that is a 3 story parking garage for example?

[Will pole mounted lighting be allowed on a parking garage roof?]

[Clarify how the mounting height is to be addressed on a rooftop parking lot.]

- **Proposed code language for the 2013 Intervening Cycle**

LEGEND FOR PROPOSED LANGUAGE

- | |
|---|
| <ol style="list-style-type: none">1. Proposed California language and modified language is <u>underlined</u>.2. Repealed text: All such language appears in strikeout.3. <i>[Information for the reader is bracketed and in red italics]</i> |
|---|

5.106.8 Light pollution reduction. [N] Outdoor lighting systems shall be designed and installed to comply with the following:

1. The minimum requirements in the *California Energy Code* for Lighting Zones 1-4 as defined in Chapter 10 of the California Administrative Code; and
2. Backlight, Uplight and Glare (BUG) ratings as defined in IES TM-15-11; and
3. Allowable BUG ratings not exceeding those shown in Table 5.106.8, or

Comply with a local ordinance lawfully enacted pursuant to Section 101.7, whichever is more stringent.

Exceptions: [N]

1. Luminaires that qualify as exceptions in Section ~~147~~ **140.7** of the *California Energy Code*. *[The CEC Section reference will be corrected in an errata published before the effective date]*
2. Emergency lighting.

Note: [N] See also *California Building Code*, Chapter 12, Section 1205.6 for college campus lighting requirements for parking facilities and walkways.

**TABLE 5.106.8 [N]
MAXIMUM ALLOWABLE BACKLIGHT, UPLIGHT AND GLARE (BUG) RATINGS ^{1,2}**

ALLOWABLE RATING	LIGHTING ZONE 1	LIGHTING ZONE 2	LIGHTING ZONE 3	LIGHTING ZONE 4
Maximum Allowable Backlight Rating ³				
Luminaire greater than 2 mounting heights (MH) from property line	No Limit	No Limit	No Limit	No Limit
Luminaire back hemisphere is 1 – 2 MH from property line	B2	B3	B4	B4
Luminaire back hemisphere is 0.5 – 1 MH from property line	B1	B2	B3	B3
Luminaire back hemisphere is less than 0.5 MH from property line	B0	B0	B1	B2
Maximum Allowable Uplight Rating ⁴				
For area lighting	U0	U0	U0	U0
For all other outdoor lighting, including decorative luminaires	U1	U2	U3	U4
Maximum Allowable Glare Rating ⁵				
Luminaire greater than 2 MH from property line	G1	G2	G3	G4
Luminaire front hemisphere is 1 – 2 MH from property line	G0	G1	G1	G2
Luminaire front hemisphere is 0.5 – 1 MH from property line	G0	G0	G1	G1
Luminaire back <i>[should this be "front" as it refers to the glare rating? Not the back lighting]</i> hemisphere is less than 0.5 MH from property line	G0	G0	G0	G1

- IESNA Lighting Zones 0 and 5 are not applicable; refer to Lighting Zones as defined in the *California Energy Code* and Chapter 10 of the *California Administrative Code*.
- For property lines that abut public walkways, bikeways, plazas and parking lots, the property line may be considered to be 5 feet beyond the actual property line for purpose of determining compliance with this section. For property lines that abut public roadways and public transit corridors, the property line may be considered to be the centerline of the public roadway or public transit corridor for the purpose of determining compliance with this section.
- If the nearest property line is less than or equal to two mounting heights from the back hemisphere of the luminaire distribution, the applicable reduced Backlight rating shall be met.
- General lighting luminaires in areas such as outdoor parking, sales or storage lots shall meet these reduced ratings. Decorative luminaires located in these areas shall meet U-value limits for "all other outdoor lighting."
- If the nearest property line is less than or equal to two mounting heights from the front hemisphere of the luminaire distribution, the applicable reduced Glare rating shall be met.
[The BUG rating table appears to have conflicting direction with respect to Glare Rating for a fixture that is say 3 MH (3 mounting heights) from the property line. Footnote 5 indicates that the reduced glare ratings only apply to fixtures LESS than or EQUAL to 2 MH. Yet, the chart has a reduced glare rating for fixtures greater than 2 MH from the property line. Please advise which is correct.]