

CALIFORNIA BUILDING STANDARDS COMMISSION

August 20, 2019
GREEN BUILDING
WORKSHOP
Agenda Item 3

DRAFT EXPRESS TERMS CALIFORNIA GREEN BUILDING STANDARDS CODE, (CALGreen), PART 11, CALIFORNIA BUILDING STANDARDS CODE, TITLE 24, CALIFORNIA CODE OF REGULATIONS

- Proposed code language for the 2019 Intervening Code Adoption Cycle

LEGEND FOR EXPRESS TERMS

1. New California amendments: All such language appears underlined.
2. Repealed text: All such language appears in ~~strikeout~~.

5.106.8 Light pollution reduction (Mandatory Measures)

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

CBSC proposes the following amendments in Section 5.106.8:

Strike the [N] banner from Exceptions, amend Exception 1 and add a new Exception 5. Additional amendments include adding new code Sections 5.106.8.1 with exception and 5.106.8.2 and striking the [N] banner from Note 1 and repealing footnotes 3 and 5.

Rationale for proposed code changes:

CBSC's proposes to strike the [N] banner from Exceptions for consistency and uniformity in the code as the exceptions are not only for new construction.

CBSC's proposes to amend Exception 1 to add an exception for cutoff luminaires to align CALGreen with the BUG requirements and exceptions adopted into Section 130.2(b) of Title 24, Part 6, *2019 California Energy Code*.

CBSC's proposes to add Exception 5, for "Luminaires with less than 6,200 initial luminaire lumens" to align CALGreen with similar language adopted in the *2019 California Energy Code* Section 130.2(b), Luminaire cutoff requirements.

CBSC's proposal to add new code Sections 5.106.8.1 and 5.106.8.2 is to move two footnotes from Table 5.106.8 into these two new Sections, and to clarify their application and intent. To the extent that the original language was ambiguous regarding when increases in stringency of backlight and glare would apply, and how luminaire facing was to be addressed, this change has the material effect of ensuring that increased requirements do not apply to luminaires located more than two mounting heights away from property lines, and precluding illogical

facing of luminaires located close to property boundaries. The changes to this section are necessary to align the application of Section 5.106.8 to the intent of the original code language and to ensure the requirements comply with backlight and glare ratings, but do not apply when they would not be of benefit.

The purpose of the new exception to Section 5.106.8.1 is to align the scope of Part 11, Section 5.106.8 to the scope of similar provisions in Part 6, Section 130.2(b). Light pollution provisions were first adopted into Part 6 and later moved into Part 11. To the extent that the language in Part 11 could have been understood to be more broad in application than that in Part 6, this change has the material effect of narrowing the application of these requirements to luminaires within the scope of the Part 6 provisions. This change is necessary to prevent a conflict between the scoping provisions of light pollution in Parts 6 and 11; the scoping provisions in Part 11 are intended to reflect the scoping provisions in Part 6.

CBSC's proposal to strike the [N] banner from Notes is necessary for consistency and uniformity in the code as the notes have a provision for additions and alterations, as well as new construction.

CBSC's proposed amendments will benefit the code user by clarifying the exceptions to the requirements of light pollution reduction by avoiding conflict with mandatory provisions of California Energy Code for newly constructed nonresidential buildings, additions and alterations. Additionally, the new code sections will help clarify the application and intent of how backlight and glare are to be addressed when located near property lines.

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 . . . ; and
2. Backlight (B) ratings as defined in IES TM-15-11 . . . ;
3. Uplight and Glare ratings . . . and
4. 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 Sections 130.2(b) and 140.7 of the *California Energy Code*.
2. Emergency lighting.
3. Building façade . . .
4. Custom lighting features . . .
5. Luminaires with less than 6,200 initial luminaire lumens.

5.106.8.1 Facing – Backlight. Luminaires within 2MH of a property line shall be oriented so that the nearest property line is behind the fixture, and shall comply with the backlight rating specified in Table 5.106.8 based on the lighting zone and distance to the nearest point of that property line.

Exception: Corners. If two property lines (or two segments of the same property line) have equidistant points to the luminaire, then the luminaire may be oriented so that the intersection of the two lines (the corner) is directly behind the luminaire. The luminaire shall still use the distance to the nearest point(s) on the property lines to determine the required backlight rating.

5.106.8.2 Facing – Glare. For luminaires covered by 5.106.8.1, if a property line also exists within or extends into the front hemisphere within 2MH of the luminaire then the luminaire shall comply with the more stringent glare rating specified in Table 5.106.8 based on the lighting zone and distance to the nearest point on the nearest property line within the front hemisphere.

Notes:

1. [N] See also California Building Code, Chapter 12, Section 1205.7 for college campus lighting requirements for parking facilities and walkways.
2. Refer to Chapter 8 (Compliance Forms, Worksheets and Reference Material) for IES TM-15-11 Table A-1, California Energy Code Tables 130.2-A and 130.2-B.
3. Refer to the California Energy Code for requirements for additions and alterations.

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

ALLOWABLE RATING	LIGHTIN G ZONE LZ0	LIGHTIN G ZONE LZ1	LIGHTIN G ZONE LZ2	LIGHTIN G ZONE LZ3	LIGHTIN G ZONE LZ4
Maximum Allowable Backlight Rating³ (B)					
Luminaire greater than 2 mounting heights (MH) from property line	N/A	No Limit	No Limit	No Limit	No Limit
Luminaire back hemisphere is 1 – 2 MH from property line	N/A	B2	B3	B4	B4
Luminaire back hemisphere is 0.5 – 1 MH from property line	N/A	B1	B2	B3	B3
Luminaire back hemisphere is less than 0.5 MH from property line	N/A	B0	B0	B1	B2
Maximum Allowable Uplight Rating (U)					
For area lighting ^{4,3}	N/A	U0	U0	U0	U0
For all other outdoor lighting, including decorative luminaires	N/A	U1	U2	U3	U4
Maximum Allowable Glare Rating⁵ (G)					
Luminaire greater than 2 MH from property line	N/A	G1	G2	G3	G4
Luminaire front hemisphere is 1 – 2 MH from property line	N/A	G0	G1	G1	G2
Luminaire front hemisphere is 0.5 – 1 MH from property line	N/A	G0	G0	G1	G1
Luminaire front hemisphere is less than 0.5 MH from property line	N/A	G0	G0	G0	G1

1. IESNA Lighting Zones 0 are not applicable; refer to Lighting Zones as defined in the California Energy Code and Chapter 10 of the California Administrative Code.

2. 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.

~~3. 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.~~

3. 4. 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.”

~~5. 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.~~

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