Proposal Summary

Indoor Lighting Power Density

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Prepared by: Jon McHugh (McHugh Energy), Bernie Bauer (Integrated Lighting Concepts)
Jasmine Shepard and Yao-Jung Wen (Energy Solutions)

1.Measure Description

1.1 Summary of Proposed Changes

This code change proposal aims to update the mandatory methodology for allocating wattage to installed lighting wattage and update the prescriptive requirements on lighting power density (LPD) for nonresidential indoor spaces. The LPD requirements dictate the maximum lighting power allowed in each building type or space type within a building. Consideration of the following three factors is the basis for updating the LPD values:

1) The increase in light source luminous efficacy due to advancements in LED technologies since the last update in the 2022 code cycle.
2) Area categories where the national standards (2025 ASHRAE 90.1) and other model codes (2024 IECC) have more stringent LPD requirements than 2025 Title 24, Part 6.
3) Alignment with current industry practice in the lamp lumen depreciation (LLD) assumptions used in deriving the LPD requirements.

The revised LPD requirements do not vary by climate zone and will apply to new construction, additions, and alterations. There will be no impact on residential, Group R spaces as mandated by Assembly Bill (AB) 130. No changes to the compliance process are anticipated. While no structural or formatting change to the compliance software and documents are expected, the LPD values within the software and documents would need to be updated.

This proposal also includes a new data center-related building type for the complete building method and new primary function area for the area category method, along with corresponding LPD values.

In addition, the proposal aims to simplify the indoor lighting alteration provisions by replacing the current 5,000 ft² floor-area limitation for one-to-one luminaire alterations with a cap on the total wattage of altered luminaires. Under the proposed change, the simplified alteration pathway would apply where the total wattage of altered luminaires does not exceed 3,000 watts and the alteration reduces lighting wattage by at least 40 percent. This change maintains comparable stringency while eliminating the need to determine room or tenant space floor area to demonstrate eligibility for the simplified compliance pathway.

By integrating current technologies, good design practices, and updated standards, this code change would reinforce California's leadership in energy efficiency and ensure future building designs maximize performance, sustainability, and affordability.

Table 1 summarizes the scope of the proposed code change.

Table 1: Scope of Proposed Code Change

A ☑ indicates the proposed code change is relevant.

Building Type(s)	Construction Type(s)	Type of Change
☐ Single Family	☑ New Construction	☑ Mandatory
☐ Multifamily	☑ Additions	☑ Prescriptive
☑ Nonresidential (Not Group R uses)	☑ Alterations	☑ Performance

Application Climate Zones	Energy Code Sections	Compliance Forms	Sections of ACM Reference Manuals
Climate Zones 1-16	Part 6, Section 130.0(c), 140.6, 141.0	NRCC-LTI-E, LMCC-LTI-E and NRCC/LMCC-PRF-E	Prescriptive

Third Party Verification)	Updates to Compliance Software
☑ No changes to third party verification	☐ No updates
☐ Update existing verification requirements	☑ Update existing feature
☐ Add new verification requirements	☐ Add new feature

1.2 Proposed Title 24, Part 6 LPDs Compared with LPDs in Other Energy Codes

Table 2 compares the allowed lighting power densities of this proposal with the lighting power densities of the current 2025 version of Title 24, Part 6 and with the LPDs in the national nonresidential model energy code ASHRAE 90.1-2025. It is anticipated that the 2027 version of the IECC will have the base LPD values as in ASHRAE 90.1. The first additional lighting power allowance is shown for the proposed 2028 Title 24 Area Category Method, and for ASHRAE 90.1-2025 the additional lighting power allowance is 0.50 Watts per square foot across all primary function areas and a separate section of 90.1-2025 has retail display lighting allowances that vary by type of product sold.

The ratios of the proposed 2028 Title 24 allowed base LPD allowance and the 2025 Title 24 allowed general lighting LPD indicated the increase in stringency. These range between 58% and 110% with most around 85% reflecting the change in luminous efficacy of products.

In the primary function area column, several of these areas are in blue font. They represent new function areas or represent 2025 single primary function areas that were split up into multiple areas. The benefit of separating a broad multi-space primary functional area LPD into more targeted primary function area LPDs is that each LPD is more closely linked to the illumination needs of these individual space types. In the past, the LPD was targeted to the highest lighting power for all space types listed in the multiple space primary function area. As a result, for most of the space types in these groupings, the LPDs were unnecessarily high. By splitting of multiple

space types into single space types, the LPD is targeted to the specific needs of each space type. The result from these more targeted LPDs is fairly significant for the wattage reductions. For the remaining areas where the applications and design illuminances are not changing, the wattage reductions are modest, often less than the 15 percent reduction expected from luminaire efficacy alone.

Table 2: Comparison of Proposed Title 24 LPDs with 2025 Title 24 and ASHRAE 90.1-2025

Primary Function Areas	2028 Allowed Proposed Base LPD (W/sf)	2028 Additional Lighting Power (W/sf)	2025 Allowed General LPD (W/sf)	Ratio Base 2028 / 2025 Title 24	ASHRAE 90.1-2025 General Lighting	Ratio Base Allowance 2028 Title 24 / 90.1-25
Aging Eye/Low-vision: Corridor Area	0.60	0.30	0.70	86%	0.60	100%
Aging Eye/Low-vision: Dining	0.80	0.40	0.80	100%	1.08	74%
Aging Eye/Low-vision: Main Entry Lobby	0.80	1.10	0.85	94%	1.27	63%
Aging Eye/Low-vision: Lounge/Waiting Area	0.80	0.40	0.80	100%	1.06	75%
Aging Eye/Low-vision: Multipurpose Room	0.80	0.40	0.85	94%	1.06	75%
Aging Eye/Low-vision: Religious Worship Area	0.80	0.50	1.00	80%	0.62	129%
Aging Eye/Low-vision: Restroom	0.90	0.30	1.00	90%	0.90	100%
Aging Eye/Low-vision: Stairwell	0.80	0.30	0.80	100%	N/A	N/A
Atria < 20 ft tall	0.30	0.20	0.60	50%	0.29	103%
Atria 20 to < 40 ft	0.40	0.25	0.60	67%	0.37	108%
Atria > 40 ft	0.50	0.30	0.60	83%	0.49	102%
Audience Seating Area	0.30	0.35	0.50	60%	0.23	130%
Auditorium Area	0.50	0.45	0.70	71%	0.56	89%
Auto Repair / Maintenance Area	0.55	0.20	0.55	100%	0.56	98%
Barber, Beauty Salon and Spa Area	0.65	0.50	0.70	93%	0.61	107%
Civic Meeting Room	0.70	0.30	0.90	78%	0.96	73%
Convention Center: Ballroom	0.45	0.40	0.75	N/A	N/A	N/A
Convention: Concourse	0.45	0.25	0.60	75%	0.51	88%
Convention: Exhibit Space	0.45	0.30	0.75	60%	0.83	54%
Convention: Meeting Room	0.65	0.25	0.75	87%	0.83	78%
Control room	0.60	0.00	N/A	N/A	0.65	92%
Copy Room	0.45	0.00	0.50	90%	0.52	87%
Corridor Area	0.35	0.30	0.40	88%	0.43	81%
Data center: Computer room	0.45	0.25	N/A	N/A	0.70	64%

Primary Function Areas	2028 Allowed Proposed Base LPD (W/sf)	2028 Additional Lighting Power (W/sf)	2025 Allowed General LPD (W/sf)	Ratio Base 2028 / 2025 Title 24	ASHRAE 90.1-2025 General Lighting	Ratio Base Allowance 2028 Title 24 / 90.1-25
Dining Area: Bar/Lounge and Fine Dining	0.30	0.45	0.45	67%	0.69	43%
Dining Area: Cafeteria/Fast Food	0.40	0.25	0.45	89%	0.35	114%
Dining Area: Family and Leisure	0.35	0.25	0.40	88%	0.50	70%
Kitchen/Food Preparation Area	0.85	0.00	0.95	89%	0.93	91%
Education/Business: Classroom, Training,	0.56		0.60	93%	0.68	82%
Educational, civic: Multipurpose room (art, music etc)	0.65	0.30	0.75	87%	0.83	78%
Electrical, Mechanical, Telephone Rooms	0.40	0.20	0.40	100%	0.67	60%
Exercise/Fitness Center and Gymnasium Area	0.55	0.00	0.50	110%	0.78	71%
Financial Transaction Area	0.53	0.30	0.70	76%	0.53	100%
Healthcare: Corridor	0.55	0.25	N/A	N/A	0.60	92%
Healthcare: Exam/Treatment Room	1.10	0.00	1.15	96%	1.26	87%
Healthcare: Imaging Room	0.55	0.35	0.60	92%	0.88	63%
Healthcare: Medical Supply Room	0.50	0.00	0.55	91%	0.52	96%
Healthcare: Nursery	0.80	0.20	0.80	100%	0.84	95%
Healthcare: Nurse's Station	0.80	0.30	0.85	94%	0.93	86%
Healthcare: Operating Room	1.80	0.00	1.90	95%	1.99	90%
Healthcare: Patient Room - Critical care	0.90	0.35	N/A			
Healthcare: Patient Room - General	0.65	0.35	0.70	93%	0.73	89%
Healthcare: Physical Therapy Room	0.65	0.10	0.75	86%	0.86	75%
Healthcare: Recovery Room	0.85	0.20	0.90	94%	1.13	75%
Laboratory: Scientific and Teaching	0.80	0.35	0.90	89%	1.18	68%
Laundry Area	0.43	0.00	0.45	96%	0.48	90%
Library : Reading Area	0.70	0.25	0.80	88%	0.80	88%
Library : Stacks Area	0.91	0.00	1.00	91%	1.15	79%

Primary Function Areas	2028 Allowed Proposed Base LPD (W/sf)	2028 Additional Lighting Power (W/sf)	2025 Allowed General LPD (W/sf)	Ratio Base 2028 / 2025 Title 24	ASHRAE 90.1-2025 General Lighting	Ratio Base Allowance 2028 Title 24 / 90.1-25
Lobby: Elevator	0.50	0.40	N/A	N/A	0.56	89%
Lobby: Main entry	0.60	0.40	0.70	86%	0.74	81%
Lobby: Performing Arts	0.60	0.40	0.70	86%	1.13	53%
Locker Room	0.40	0.00	0.45	88%	0.40	99%
Lounge, Breakroom, or Waiting Area	0.45	0.25	0.55	82%	0.50	90%
Manufacturing & Commercial Work Area: Low Bay	0.63	0.20	0.60	105%	0.81	77%
Manufacturing & Commercial Work Area: High Bay	0.65	0.20	0.65	100%	1.15	57%
Manufacturing & Commercial Work Area: Precision	0.80	0.70	0.85	94%	0.71	113%
Motion picture: Theater area	0.32	0.25	0.50	65%	0.20	162%
Museum: Exhibition/Display	0.60	0.50	0.80	75%	0.27	222%
Museum Area: Restoration Room	0.65	0.35	0.70	93%	1.17	56%
Office Area: ≤ 250 square feet	0.55	0.25	0.65	84%	0.69	79%
Office Area: > 250 square feet	0.50	0.25	0.60	83%	0.52	96%
Office: Conference Room	0.60	0.25	0.75	80%	0.83	72%
Parking Garage Area: Parking Zone and Ramps	0.08	0.00	0.10	80%	0.08	100%
Parking Garage Area: Daylight Adaptation Zones	0.08	0.70	1.00	8%	0.79	10%
Performance : Theater area	0.50	0.40	0.80	63%	0.97	52%
Performance : Dressing room	0.47		N/A	N/A	0.37	126%
Pharmacy Area	1.00	0.35	1.00	100%	1.49	67%
Retail: Concourse	0.35	0.35	0.60	58%	0.51	69%
Retail: Grocery Sales	0.85	0.35	1.00	85%	0.79	108%
Retail: Merchandise Sales	0.91	0.35	0.95	95%	0.79	115%

Primary Function Areas	2028 Allowed Proposed Base LPD (W/sf)	2028 Additional Lighting Power (W/sf)	2025 Allowed General LPD (W/sf)	Ratio Base 2028 / 2025 Title 24	ASHRAE 90.1-2025 General Lighting	Ratio Base Allowance 2028 Title 24 / 90.1-25
Retail: Fitting Room	0.50		0.60	83%	0.42	119%
Religious Worship Area	0.75	0.25	0.95	79%	0.64	117%
Restrooms	0.60	0.35	0.65	92%	0.73	82%
Stairwell	0.57	0.35	0.60	95%	0.44	130%
Sports Arena – Playing Area: Class I Facility	2.25	0.00	2.25	100%	2.65	85%
Sports Arena – Playing Area: Class II Facility	1.45	0.00	1.45	100%	1.87	78%
Sports Arena – Playing Area: Class III Facility	1.05	0.00	1.1	95%	1.21	86%
Sports Arena – Playing Area: Class IV Facility	0.71	0.00	0.75	95%	0.81	88%
Transportation: Baggage Area	0.30	0.10	0.40	75%	0.29	103%
Transportation: Concourse	0.35	0.35	0.60	58%	0.46	76%
Transportation : Ticketing Area	0.40	0.20	0.45	89%	0.37	108%
Transportation: Waiting area	0.45	0.20	0.60	75%	0.71	63%
Videoconferencing Studio	0.73	1.00	0.90	81%	1.11	66%
Warehouse: Storage	0.40	0.00	0.40	100%	0.41	98%
Warehouse: Shipping and Handling	0.60	0.00	0.60	100%	0.83	72%

2. Justification for Proposed Change

Indoor LPD requirements underwent a significant update in the 2019 code cycle and were slightly updated for a limited set of area and building categories in the 2022 code cycle. The Statewide CASE Team reviewed the current LED light source efficacy and requirements in national standards and other model codes. The LPD values for certain spaces in these standards and model codes are already lower than the LPD values in the 2025 Title 24. ASHRAE 90.1 (Energy Standard for Buildings Except Low-Rise Residential Buildings) has already published lower LPD values for some spaces in Addendum S to ASHRAE 90.1-2022 and the same general lighting LPD values have been proposed for the 2027 version of IECC (International Energy Conservation Code). The Statewide CASE Team also recognized that the light loss factors, specifically, the lamp lumen depreciation (LLD) values used to derive the LPD values for past code cycles, have been based on factors for traditional light sources, despite the underlying technology for the LPD values already being LED. This appears to be inconsistent with current industry practices and should be updated accordingly.

Current code requirements have not explicitly addressed LPDs for data centers and the related spaces. Given the rapid growth in data center construction to support cloud computing and artificial intelligence, it is critical to ensure illumination services are provided with high energy efficiency in data centers. Therefore, the Statewide CASE Team recommends including data centers and related spaces as part of the effort in updating the LPD requirements.

Updating the LPD requirements presents a significant opportunity for savings, highlighting that lighting remains one of the most impactful building end-uses for reducing energy demand and the carbon footprint of nonresidential buildings.

3. Data Needs / Information Requests

The Statewide CASE Team is seeking the following information to inform the code change proposal. Data may be provided anonymously. To participate or provide information, please email Jon McHugh, info@mchughenergy.com directly and copy info@title24stakeholders.com. The Statewide CASE Team is specifically seeking feedback on the following:

- With the advent of programmable drivers, the wattage of drivers can be adjusted not only by the manufacturer but also by other manufacturer approved representatives, such as distributors. How should the maximum wattage be documented for verification during the compliance process?
    - Permanent label installed by manufacturer or manufacturer approved representative (to be verified by field inspector compared to NRCI form)
    - Document that certifies the maximum wattage of the luminaire as programmed (to be verified by plans examiner compared to NRCC form)
    - Both label and document
- Should the revised code allow the calculated luminaire wattage of luminaires with line voltage sockets to be the total wattage of the installed lamps without requiring a luminaire wattage label?

- What fraction of lighting retrofits today end up replacing the entire luminaire because they are not allowed to get credit for lower wattage lamps based on current 130.0(c) definitions?
- Are any of the proposed lighting power densities too high or too low? Which ones and what do you recommend as better values?
- How could the calculation of installed wattage or allowed wattage to be simplified while retaining overall stringency?
- What is your estimate of LED luminaire efficacy increase over the last six years, as a percentage?
- Which applications are challenging to design within the 2022 Energy Code allowed LPD?
- Which lighting system type is most impacted by the 2022 Energy Code allowed LPD requirements? i.e., general, decorative, task, etc.

4. Draft Code Language

4.1 Guide to Marked Up Language

The proposed changes to the standards, Reference Appendices, and the ACM Reference Manuals are provided below. Changes to the 2025 documents should be marked with dark blue underlining (new language) and ~~strikethroughs~~ (deletions). New to the 2028 energy code is to *italicize defined terms* when the terms are being used in its defined context. In-line comments that are not part of the proposed code language but are used to help describe the purpose of what is proposed are included *with greyed highlight and italics.*

Markups are provided to the restructured 2025 Energy Code that the CEC developed in response to feedback that aligning the structure of Title 24, Part 6 with other parts of the California Building Standards Code (Title 24) would improve readability, usability, and navigation.[1] New restructured section numbers are shown in bold font followed by italicized section numbers in square brackets that document the section in the 2025 Title 24, Part 6 section numbers prior to the restructuring. For example, "**Section 601.1** [Section 130.0(a)] **General"** contains the content that is in the current Section 130.0(a).

Posting the proposed code language in this new restructured format is useful as it helps describe how the Energy Code changes proposed for nonresidential occupancies are isolated from the requirements for residential occupancies which are prohibited from being changed until the 2031 code cycle by AB 130.

4.2 Title 24, Part 1

There are no proposed changes to Title 24, Part 1.

[1] https://www.energy.ca.gov/media/12153 for more details see the docket log for docket number 24-BSTD-05 https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=24-BSTD-05

4.3 Title 24, Part 6

4.3.1 Proposed Changes to Definitions Section

SECTION 201 [100.1] DEFINITIONS

…

This definition identifies which applications are prohibited from having their code requirements changed during the 2028 code cycle by AB 130.

GROUP R OCCUPANCIES AND COMMON OR PUBLIC USE AREAS: Group R occupancy as defined by the California Building Code and spaces ancillary to the occupancy that are not part of individual dwelling or sleeping units and are intended for shared, common, or public use, including areas that support occupant use or building operations.

4.3.2 SECTION 601 NONRESIDENTIAL AND HOTEL/MOTEL OCCUPANCIES (NEWLY CONSTRUCTED, ADDITIONS, ALTERATIONS)

601.1 *[Section 130.0(a)]* **General.**

The design and installation of all *lighting* systems and *equipment* in *nonresidential* and *hotel/motel buildings*, *outdoor lighting*, and *electrical power distribution systems* within the scope of Section 100.3 *[Section 100.0(a)]*, shall comply with the applicable provisions of Section 601 .

NOTE: The requirements of Sections 601.2 through 601.4 apply to *newly constructed buildings*. Section 601.5 applies to *additions* or *alterations* to existing *buildings*.

601.1.1 *[Section 130.0(b)]* **Functional areas where compliance with the single-family residential lighting standards is required.**

The design and installation of all *lighting* systems, *lighting* controls and *equipment* in the following functional areas shall comply with the applicable residential *lighting* requirements of Section 602.2.1 *[Section 150.0(k)]*. In *buildings* containing these functional areas, all other functional areas, such as common areas, shall comply with the applicable nonresidential *lighting* and controlled receptacle requirements.

1. *Outdoor lighting* attached to a *hotel/motel building* and separately controlled from the inside of a guest room.
2. Fire station *dwelling* accommodations.
3. Hotel and motel guest rooms. Additionally, hotel and motel guest rooms shall meet the requirements of Section 601.2.2.3.7 *[Section 130.1(c)8]* and Section 601.2.6.4.1 *[Section 130.5(d)4]*.

601.2 Mandatory requirements (Newly Constructed, Additions, Alterations).

Note: *This section below splits the changed new requirements for nonresidential occupancies in Section 601.2.1.1 and its subsections from the unchanged requirements in Section 601.2.1.2 and its subsections*

601.2.1 *[Section 130.0(c)]* **Luminaire classification, and power.**

Luminaires shall be classified, and their wattage shall be determined and labeled ~~as follows:~~ in accordance with Section 601.2.1.2 for *Group R Occupancies and Common or Public Use Areas* and in accordance with Section 601.2.1.1 for all other Nonresidential Occupancies

601.2.1.1 *[new]* **Luminaire classification, and power in Nonresidential Occupancies Not Including *Group R occupancies and common use areas*.**

Luminaires shall be classified, and their wattage shall be determined and labeled as follows:

~~601.2.1.1. ***[Section 130.0(c)1A]*** Rated wattage label.~~

~~The maximum rated wattage or relamping rated wattage of a *luminaire* shall be listed on a permanent, preprinted, factory installed label, as specified by *UL 1574*, 1598, 2108 or 8750, as applicable.~~

~~601.2.1.2 ***[Section 130.0(c)1B]*** Permanent label.~~

~~The factory-installed maximum rated wattage or relamping rated wattage label shall not consist of peel-off or peel-down layers or other methods that allow the rated wattage to be changed after the *luminaire* has been shipped from the manufacturer.~~

~~**Exception to Section 601.2.1.2:** Peel-down labels may be used only for the following *luminaires*, when they can accommodate a range of *lamp* wattages without changing the *luminaire* housing, ballast, transformer or wiring. Qualifying *luminaires* shall have a single *lamp*, and shall have integrated ballasts or transformers. Peel-down labels must be layered such that the rated wattage reduces as successive layers are removed.~~

~~High-intensity discharge *luminaires*, having an integral electronic ballast, with a maximum relamping rated wattage of 150 watts.~~

~~Low-voltage *luminaires* (except *low voltage* track systems), ≤ 24 volts, with a maximum relamping rated wattage of 50 watts.~~

~~C~~ompact fluorescent *luminaires*, having an integral electronic ballast, with a maximum relamping rated wattage of 42 watts.

~~**601.2.1.3**~~ **601.2.1.1.1** *[Section 130.0(c)2]* **Luminaires with line voltage lamp holders not served by drivers, ballasts or transformers.**

For *luminaires* with line voltage *lamp* holders not served by *drivers*, ballasts, or transformers; the wattage of such *luminaires* shall be ~~determined as the maximum relamping rated wattage as labeled in accordance with Sections 601.2.1.1 and 601.2.1.2 [Section 130.0(c)1].~~ the labeled maximum wattage of the specified and installed lamps or solid state lighting (SSL) light engines.

~~**601.2.1.5**~~ **601.2.1.1.**2 *[Section 130.0(c)4]* **Inseparable Solid State Lighting (SSL) luminaires and SSL luminaires with remotely mounted drivers.**

For inseparable *SSL luminaires* and *SSL luminaires* with remotely mounted *drivers*, including luminaires that are field-adjustable, the ~~maximum rated~~ wattage of the *SSL luminaire* shall be the maximum rated wattage of the luminaire ~~as specified in Sections 601.2.1.1 and 601.2.1.2 [Section 130.0(c)1] when tested in accordance with UL 1598, 2108 or 8750, or IES LM-79.~~ listed

on a permanent, preprinted, label installed by the manufacturer or manufacturer's authorized representative, as specified by UL 1574, 1598, 2108 or 8750, as applicable.

~~601.2.1.4~~ 601.2.1.1.3 *[Section 130.0(c)3]* **Luminaires with permanently installed or remotely installed ballasts.**

For *luminaires* with permanently installed or remotely installed ballasts, the wattage of such *luminaires* shall be the operating input wattage of the rated *lamp*/ballast combination published in the ballast manufacturer's catalogs based on independent testing lab reports as specified by *UL 1598*.

Note: *The following covers UL Type A retrofits.*

601.2.1.1.4 *[new]* **Luminaires with ballasts powering SSL lighting.**

Wattage of *luminaires* containing HID or fluorescent ballasts powering solid state lighting shall be the maximum rated wattage of the ballast.

~~601.2.1.6~~ 601.2.1.1.5 *[Section 130.0(c)5]* **LED tape lighting.**

For *LED* tape *lighting* and *LED* linear *lighting* with *LED* tape *lighting* components, the maximum rated wattage shall be the sum of the installed length of the tape *lighting* times its rated linear power density in watts per linear feet, or the maximum rated input wattage of the *driver* or power supply providing power to the *lighting* system, with tape *lighting* tested in accordance with *UL 2108 or 8750*, or *IES LM-79*.

~~601.2.1.7~~ 601.2.1.1.6 *[Section 130.0(c)6]* **Modular lighting systems.**

For modular *lighting* systems that allow the addition or relocation of *luminaires* without altering the wiring of the system, shall be determined as follows:

1. The wattage shall be the greater of:

    1.1 30 watts per linear foot of track or plug-in busway; or

    1.2 the rated wattage of all of the *luminaires* included in the system, where the *luminaire* wattage is determined as specified in Sections 601.2.1.1 and 601.2.1.2 *[Section 130.0(c)1]*.

~~2. For line-voltage lighting track and plug-in busway served by a track lighting integral current limiter or a dedicated track lighting supplementary overcurrent protection panel, the wattage shall be determined as follows:~~

~~2.1 The volt-ampere rating of the current limiter as specified by UL 1077; or~~

~~2.2 The sum of the ampere (A) rating of all of the current protection devices times the branch circuit voltages for *track lighting supplementary overcurrent protection panel.*~~

2 ~~3~~. For other modular *lighting* systems with power supplied by a *driver*, power supply or transformer, including but not limited to low-voltage *lighting* systems, the wattage of the system shall be the maximum rated input wattage of the *driver*, power supply or transformer published in the manufacturer's catalogs, as specified by *UL 2108 or 8750*.

Exception to Section ~~601.2.1.7~~ 601.2.1.1.6 : For power-over-Ethernet *lighting* systems, power provided to installed nonlighting devices may be subtracted from the total power rating of the power-over-Ethernet system.

***Note:** The following allows the deemed wattage all lighting system types (not just track lighting) to be the maximum wattage allowed by a current limiter or supplementary overcurrent protection control.*

601.2.1.1.7 *[new]* Current limiters or supplementary overcurrent protection.

For any lighting system controlled by a current limiter or supplementary overcurrent protection panel, the wattage shall be determined as follows:

1. The volt-ampere rating of the current limiter as specified by UL 1077; or

2. The sum of the ampere (A) rating of all of the current protection devices times the branch circuit voltages for the lighting supplementary overcurrent protection panel.

601.2.1.1.8 *[Section 130.0(c)7]* **All other lighting equipment.**

For all other *lighting equipment* not addressed by Sections 601.2.1.1.1 through 601.2.1.1.7 *[Sections 130.0(c)2 through 6]*, the wattage of the *lighting equipment* shall be the maximum rated wattage of the *lighting equipment*, or operating input wattage of the system, labeled on a permanent, preprinted, factory installed label, as specified by UL 1574, 1598, 2108 or 8750, as applicable , or published in manufacturer's catalogs, based on independent testing lab reports as specified by *UL 1574, 1598, 2108 or 8750,* or *IES LM-79*.

***Note:** this section is unchanged except for numbering updates and the addition of noting the requirements apply only to Group R occupancies.*

601.2.1.2 *Group R occupancies and common and public use areas*: classification, and power. Luminaires shall be classified, and their wattage shall be determined and labeled as follows:

~~601.2.1.1~~ 601.2.1.2.1 *[Section 130.0(c)1A]* **Rated wattage label.**

The maximum rated wattage or relamping rated wattage of a *luminaire* shall be listed on a permanent, preprinted, factory installed label, as specified by *UL 1574*, 1598, 2108 or 8750, as applicable.

~~601.2.1.2~~ 601.2.1.2.2 *[Section 130.0(c)1B]* **Permanent label.**

The factory-installed maximum rated wattage or relamping rated wattage label shall not consist of peel-off or peel-down layers or other methods that allow the rated wattage to be changed after the *luminaire* has been shipped from the manufacturer.

Exception to Section ~~601.2.1.2~~ 601.2.1.2.2: Peel-down labels may be used only for the following *luminaires*, when they can accommodate a range of *lamp* wattages without changing the *luminaire* housing, ballast, transformer or wiring. Qualifying *luminaires* shall have a single *lamp*, and shall have integrated ballasts or transformers. Peel-down labels must be layered such that the rated wattage reduces as successive layers are removed.

1. High-intensity discharge *luminaires*, having an integral electronic ballast, with a maximum relamping rated wattage of 150 watts.
2. Low-voltage *luminaires* (except *low voltage* track systems), ≤ 24 volts, with a maximum relamping rated wattage of 50 watts.
3. **C**ompact fluorescent *luminaires*, having an integral electronic ballast, with a maximum relamping rated wattage of 42 watts.

~~601.2.1.3~~ 601.2.1.2.3 *[Section 130.0(c)2]* **Luminaires with line voltage lamp holders not served by drivers, ballasts or transformers.**

For *luminaires* with line voltage *lamp* holders not served by *drivers*, ballasts, or transformers; the wattage of such *luminaires* shall be determined as the maximum relamping rated wattage as labeled in accordance with Sections 601.2.1.1 and 601.2.1.2 *[Section 130.0(c)1]*.

~~601.2.1.4~~ 601.2.1.2.4 *[Section 130.0(c)3]* **Luminaires with permanently installed or remotely installed ballasts.**

For *luminaires* with permanently installed or remotely installed ballasts, the wattage of such *luminaires* shall be the operating input wattage of the rated *lamp*/ballast combination published in the ballast manufacturer's catalogs based on independent testing lab reports as specified by *UL 1598*.

~~601.2.1.5~~ 601.2.1.2.5 *[Section 130.0(c)4]* **Solid State Lighting (SSL).**

For inseparable *SSL luminaires* and *SSL luminaires* with remotely mounted *drivers*, the maximum rated wattage shall be the maximum rated input wattage of the *SSL luminaire* as specified in Sections 601.2.1.1 and 601.2.1.2 *[Section 130.0(c)1]* when tested in accordance with *UL 1598*, *2108 or 8750*, or *IES LM-79*.

~~601.2.1.6~~ 601.2.1.1.6 *[Section 130.0(c)5]* **LED tape lighting.**

For *LED* tape *lighting* and *LED* linear *lighting* with *LED* tape *lighting* components, the maximum rated wattage shall be the sum of the installed length of the tape *lighting* times its rated linear power density in watts per linear feet, or the maximum rated input wattage of the *driver* or power supply providing power to the *lighting* system, with tape *lighting* tested in accordance with *UL 2108 or 8750*, or *IES LM-79*.

~~601.2.1.7~~ 601.2.1.2.7 *[Section 130.0(c)6]* **Modular lighting systems.**

For modular *lighting* systems that allow the addition or relocation of *luminaires* without altering the wiring of the system, shall be determined as follows:

1. The wattage shall be the greater of:
    1.1 30 watts per linear foot of track or plug-in busway; or
    1.2 the rated wattage of all of the *luminaires* included in the system, where the *luminaire* wattage is determined as specified in Sections 601.2.1.1 and 601.2.1.2 *[Section 130.0(c)1]*.

2. For line-voltage lighting track and plug-in busway served by a track lighting integral current limiter or a dedicated track lighting supplementary overcurrent protection panel, the wattage shall be determined as follows:

2.1 The volt-ampere rating of the current limiter as specified by UL 1077; or

2.2 The sum of the ampere (A) rating of all of the current protection devices times the branch circuit voltages for *track lighting supplementary overcurrent protection panel*.

3. For other modular *lighting* systems with power supplied by a *driver*, power supply or transformer, including but not limited to low-voltage *lighting* systems, the wattage of the system shall be the maximum rated input wattage of the *driver*, power supply or transformer published in the manufacturer's catalogs, as specified by *UL 2108 or 8750*.

Exception to Section ~~601.2.1.7~~ 601.2.1.2.7: For power-over-Ethernet *lighting* systems, power provided to installed nonlighting devices may be subtracted from the total power rating of the power-over-Ethernet system.

~~601.2.1.8~~ 601.2.1.2.8 *[Section 130.0(c)7]* **All other lighting equipment.**

For all other *lighting equipment* not addressed by Sections ~~601.2.1.3~~ 601.2.1.2.3 through ~~601.2.1.7~~ 601.2.1.2.7 *[Sections 130.0(c)2 through 6]*, the wattage of the *lighting equipment* shall be the maximum rated wattage of the *lighting equipment*, or operating input wattage of the system, labeled in accordance with Sections ~~601.2.1.1~~ 601.2.1.2.1 and ~~601.2.1.2~~ 601.2.1.2.2 *[Section 130.0(c)1]*, or published in manufacturer's catalogs, based on independent testing lab reports as specified by *UL 1574, 1598, 2108 or 8750,* or *IES LM-79*.

Note: *The following change to the alterations section streamlines the use of one-to-one luminaire alterations in nonresidential buildings by limiting its use to post alteration total wattages of no greater than 3,000 Watts which simplifies the use of the Type B and Type C alterations as compared to specifying the total floor area. When floor area defines the scope, additional costs may be incurred drawing plans to document the coverage area.*

4.3.3 601.5.2.2 *[Section 141.0(b)2]* Prescriptive requirements (Alterations).

601.5.2.2.4 *[Section 141.0(b)2I]* **Altered indoor lighting systems.**

Alterations to indoor *lighting* systems that include 10% or more of the *luminaires* serving an *enclosed space* shall meet the requirements of 1, 2, ~~or~~ 3, or 4 below:

1. Comply with Section 601.3.1 and Table 601.5-A. The *alteration* shall comply with the indoor lighting power requirements specified in Section 601.3.1 *[Section 140.6]* and the *lighting* control requirements specified in Table 601.5-A *[Table 141.0-F]*;
2. 80% of power requirements and Table 601.5-A. The *alteration* shall not exceed 80% of the indoor lighting power requirements specified in Section 601.3.1 *[Section 140.6]*, and shall comply with the lighting control requirements specified in Table 601.5-A *[Table 141.0-F]*; or

3. One-to-one luminaire alterations for Nonresidential Buildings not Including *Group R Occupancies and Common Use or Public Use Areas*. The *alteration* shall be a *one-to-one alteration*, the total wattage of the altered luminaires shall be no greater than 3,000 watts per alteration project and, the total wattage of the altered *luminaires* shall be at least 40% lower compared to their total pre-alteration wattage, and the *alteration* shall comply with the lighting control requirements specified in Table 601.5-A *[Table 141.0-F]*.

4. ~~One-for-one luminaire alterations~~ One-to-one alterations for *Group R Occupancies and Common Use or Public Use Areas*. The *alteration* shall be a ~~*one-for-one luminaire alteration*~~ *one-to-one alteration* within a *building* or *tenant space* of 5,000 square feet or less, the total wattage of the altered *luminaires* shall be at least 40% lower compared to their total pre-alteration wattage, and the *alteration* shall comply with the lighting control requirements specified in Table 601.5-A *[Table 141.0-F]*.

Alterations to indoor *lighting* systems shall not prevent the operation of existing, unaltered controls, and shall not alter controls to remove functions specified in Section 601.2.2 *[Section 130.1]*.

Alterations to *lighting* wiring are considered *alterations* to the *lighting* system. *Alterations* to indoor *lighting* systems are not required to separate existing general, floor, wall, display, or *decorative lighting* on shared circuits or controls. New or completely replaced lighting circuits shall comply with the control separation requirements of Section 601.2.2.1.3 *[Section 130.1(a)3]*.

Exception 1 to Section 601.5.2.2.4: *Alteration* of portable *luminaires*, *luminaires* affixed to moveable partitions, or *lighting* excluded as specified in Section 601.3.1.1.3 *[Section 140.6(a)3]*.

Exception 2 to Section 601.5.2.2.4: Any *enclosed space* with only one *luminaire*.

Exception 3 to Section 601.5.2.2.4: Any *alteration* that would directly cause the disturbance of asbestos unless the *alteration* is made in conjunction with asbestos abatement.

Exception 4 to Section 601.5.2.2.4: Acceptance testing requirements of Section 601.2.5 *[Section 130.4]* are not required for *alterations* where lighting controls are added to control 20 or fewer *luminaires*.

Exception 5 to Section 601.5.2.2.4: Any *alteration* limited to adding lighting controls or replacing *lamps*, ballasts, or *drivers*.

Exception 6 to Section 601.5.2.2.4: One-for-one *luminaire alteration* of up to 50 *luminaires* either per complete floor of the *building* or per complete *tenant space*, per annum.

TABLE 601.5-A [Table 141.0-F] – CONTROL REQUIREMENTS FOR INDOOR LIGHTING SYSTEM ALTERATIONS

Control Specifications	Coded Section	Projects complying with Section 601.5.2.2.4 item 1	Projects complying with 601.5.2.2.4. item 2 ~~or~~ 3, or 4
Manual Area Controls	601.2.2.1.1 *[130.1(a)1]*	Required	Required
Manual Area Controls	601.2.2.1.2 *[130.1(a)2]*	Required	Required

Manual Area Controls	601.2.2.1.3 *[130.1(a)3]*	Only required for new or completely replaced circuits	Only required for new or completely replaced circuits
Multilevel Controls	601.2.2.2 *[130.1(b)]*	Required	Not Required
Automatic Shut-Off Controls	601.2.2.3.1 *[130.1(c)1]*	Required	Required
Automatic Shut-Off Controls	601.2.2.3.2 *[130.1(c)2]*	Required	Required
Automatic Shut-Off Controls	601.2.2.3.3 *[130.1(c)3]*	Required	Required
Automatic Shut-Off Controls	601.2.2.3.4 *[130.1(c)4]*	Required	Required
Automatic Shut-Off Controls	601.2.2.3.5 *[130.1(c)5]*	Required	Required
Automatic Shut-Off Controls	601.2.2.3.6 *[130.1(c)6]*	Required	Required; except for 601.2.2.3.6.4 *[130.1(c)6D]*
Automatic Shut-Off Controls	601.2.2.3.7 *[130.1(c)8]*	Required	Required
Daylight Responsive Controls	601.2.2.4 *[130.1(d)]*	Required	Not Required
Demand Responsive Controls	600.4.1 *[110.12(a)]* and 600.4.2 *[110.12(c)]*	Required	Not Required

4.3.4 TABLE 601.3-B [TABLE 140.6-B] COMPLETE BUILDING METHOD LIGHTING POWER DENSITY VALUES

TYPE OF BUILDING	ALLOWED LIGHTING POWER DENSITY (WATTS PER SQUARE FOOT)	
Assembly Building	~~0.65~~	0.55
Bank or Financial Institution Building	~~0.65~~	0.55
Grocery Store Building	~~0.90~~	0.80
Gymnasium Building	~~0.60~~	0.55

TYPE OF BUILDING	ALLOWED LIGHTING POWER DENSITY (WATTS PER SQUARE FOOT)	
Healthcare Facility (outpatient)	~~0.90~~	0.75
Healthcare Facility (inpatient)	~~0.90~~	0.85
Industrial/Manufacturing Facility Building	0.60	_
Library Building	~~0.70~~	0.65
Motion Picture Theater Building	~~0.60~~	0.55
Museum Building	~~0.65~~	0.60
Office Building	~~0.60~~	0.55
Parking Garage Building	~~0.13~~	0.11
Performing Arts Theater Building	~~0.75~~	0.65
Religious Facility Building	~~0.70~~	0.65
Restaurant Building	~~0.65~~	0.55
Retail Store Building	~~0.90~~	0.80
School Building	~~0.60~~	0.55
Sports Arena Building	~~0.75~~	0.70
Service Facility (including auto repair)		0.60
All other buildings	0.40	

Note: *Table 601.3-C1 [Table 140.6-C1] is a new proposed table for the 2028 code cycle.* See *Table 2* in *this Measure Summary document to see a comparison of updated Primary Function Areas and Allowed Base LPD values in Table 601.3-C1 [Table 140.6-C1] and 601.3-C2 [Table 140.6-C2].*

TABLE 601.3-C1 [TABLE 140.6-C1] AREA CATEGORY METHOD - LIGHTING POWER DENSITY VALUES (WATTS/FT²) FOR NONRESIDENTIAL BUILDINGS NOT INCLUDING *GROUP R OCCUPANCIES AND COMMON USE OR PUBLIC USE AREAS*

Primary Function Areas	Allowed Base LPD (W/sf)	Additional Qualified Lighting System 1	Additional Allowance 1 (W/ft2 unless other units)	Additional Qualified Lighting System 2	Additional Allowance 2 (W/ft2 unless other units)
Aging Eye/Low-vision:[1] Corridor Area	0.60	Decorative/Display	0.30		
Aging Eye/Low-vision:[1] Dining	0.80	Decorative/Display	0.30	Tunable white or dim-to-warm[2]	0.10
Aging Eye/Low-vision:[1] Main Entry Lobby	0.80	Decorative/Display	0.30	Transition Lighting OFF at night[3]	0.80

Primary Function Areas	Allowed Base LPD (W/sf)	Additional Qualified Lighting System 1	Additional Allowance 1 (W/ft2 unless other units)	Additional Qualified Lighting System 2	Additional Allowance 2 (W/ft2 unless other units)
Aging Eye/Low-vision:[1] Lounge/Waiting Area	0.80	Decorative/Display	0.30	Tunable white or dim-to-warm[2]	0.10
Aging Eye/Low-vision:[1] Multipurpose Room	0.80	Decorative/Display	0.30	Tunable white or dim-to-warm[2]	0.10
Aging Eye/Low-vision:[1] Religious Worship Area	0.80	Decorative/Display	0.40	Tunable white or dim-to-warm[2]	0.10
Aging Eye/Low-vision:[1] Restroom	0.90	Decorative/Display	0.30		
Aging Eye/Low-vision:[1] Stairwell	0.80	Decorative/Display	0.30		
Atria < 20 ft tall	0.30	Decorative/Display	0.20		
Atria 20 to < 40 ft	0.40	Decorative/Display	0.25		
Atria > 40 ft	0.50	Decorative/Display	0.30		
Audience Seating Area	0.30	Display/decorative	0.35		
Auditorium Area	0.50	Display/decorative	0.45		
Auto Repair / Maintenance Area	0.55	Detailed Task[4]	0.20		
Barber, Beauty Salon and Spa Area	0.65	Decorative/Display	0.30	Detailed Task[4]	0.20
Civic Meeting Room	0.70	Decorative/Display	0.30		
Convention Center: Ballroom	0.45	Decorative/Display	0.40		
Convention: Concourse	0.45	Decorative/Display	0.25		
Convention: Exhibit Space	0.45	Decorative/Display	0.30		
Convention: Meeting Room	0.65	Decorative/Display	0.25		
Control room	0.60	N/A	0.00		
Copy Room	0.45	N/A	0.00		
Corridor Area	0.35	Decorative/Display	0.30		
Data center: Computer room	0.45	Detailed Task[4]	0.25		
Dining Area: Bar/Lounge and Fine Dining	0.30	Decorative/Display	0.45	TBD	
Dining Area: Cafeteria/Fast Food	0.40	Decorative/Display	0.25		
Dining Area: Family and Leisure	0.35	Decorative/Display	0.25		

Primary Function Areas	Allowed Base LPD (W/sf)	Additional Qualified Lighting System 1	Additional Allowance 1 (W/ft2 unless other units)	Additional Qualified Lighting System 2	Additional Allowance 2 (W/ft2 unless other units)
Kitchen/Food Preparation Area	0.85	N/A	0.00		
Education/Business: Classroom, Training,	0.56	Whiteboard or chalkboard[7]	7 W/lf		
Educational, civic: Multipurpose room (art, music etc)	0.65	Decorative/Display	0.30		
Electrical, Mechanical, Telephone Rooms	0.40	Detailed Task[4]	0.20		
Exercise/Fitness Center and Gymnasium Area	0.55	N/A	0.00		
Financial Transaction Area	0.53	Decorative/Display	0.30		
Healthcare: Corridor	0.55	Decorative/Display	0.25		
Healthcare: Exam/Treatment Room	1.10	N/A	0.00		
Healthcare: Imaging Room	0.55	Decorative/Display	0.25	Tunable white or dim-to-warm[2]	0.10
Healthcare: Medical Supply Room	0.50	N/A	0.00		
Healthcare: Nursery	0.80	Decorative/Display	0.10	Tunable white or dim-to-warm[2]	0.10
Healthcare: Nurse's Station	0.80	Decorative/Display	0.30		
Healthcare: Operating Room	1.80	N/A	0.00		
Healthcare: Patient Room - Critical care	0.90	Decorative/Display	0.25	Tunable white or dim-to-warm[2]	0.10
Healthcare: Patient Room - General	0.65	Decorative/Display	0.25	Tunable white or dim-to-warm[2]	0.10
Healthcare: Physical Therapy Room	0.65	Decorative/Display	0.10		
Healthcare: Recovery Room	0.85	Decorative/Display	0.10	Tunable white or dim-to-warm[2]	0.10
Laboratory: Scientific and Teaching	0.80	Specialized Task[5]	0.35		

Primary Function Areas	Allowed Base LPD (W/sf)	Additional Qualified Lighting System 1	Additional Allowance 1 (W/ft2 unless other units)	Additional Qualified Lighting System 2	Additional Allowance 2 (W/ft2 unless other units)
Laundry Area	0.43	N/A	0.00		
Library : Reading Area	0.70	Decorative/Display	0.25		
Library : Stacks Area	0.91	N/A	0.00		
Lobby: Elevator	0.50	Decorative/Display	0.40		
Lobby: Main entry	0.60	Decorative/Display	0.40		
Lobby: Performing Arts	0.60	Decorative/Display	0.40		
Locker Room	0.40	N/A	0.00		
Lounge, Breakroom, or Waiting Area	0.45	Decorative/Display	0.25		
Manufacturing & Commercial Work Area: Low Bay	0.63	Detailed Task[4]	0.20		
Manufacturing & Commercial Work Area: High Bay	0.65	Detailed Task[4]	0.20		
Manufacturing & Commercial Work Area: Precision	0.80	Precision Specialized[6]	0.70		
Motion picture: Theater area	0.32	Decorative/Display	0.25		
Museum: Exhibition/Display	0.60	Decorative/Display	0.50		
Museum Area: Restoration Room	0.65	Detailed task	0.35		
Office Area: ≤ 250 square feet	0.55	Decorative/Display and portable[10]	0.25		
Office Area: > 250 square feet	0.50	Decorative/Display and portable[10]	0.25		
Office: Conference Room	0.60	Decorative/Display	0.25		
Parking Garage Area: Parking Zone and Ramps	0.08	N/A	0.00	ATM or Ticket Machine	60 W/each
Parking Garage Area: Daylight Adaptation Zones[8]	0.08	Transition Lighting OFF at night[3]	0.70		
Performance : Theater area	0.50	Decorative/Display	0.40		
Performance : Dressing room	0.47	External illuminated mirror[9]	40 W/each	Internal illuminated mirror[9]	120 W/each
Pharmacy Area	1.00	Specialized Task[5]	0.35		
Retail: Concourse	0.35	Decorative/Display	0.35		
Retail: Grocery Sales	0.85	Decorative/Display	0.35	TBD	

Primary Function Areas	Allowed Base LPD (W/sf)	Additional Qualified Lighting System 1	Additional Allowance 1 (W/ft2 unless other units)	Additional Qualified Lighting System 2	Additional Allowance 2 (W/ft2 unless other units)
Retail: Merchandise Sales	0.91	Decorative/Display	0.35	TBD	
Retail: Fitting Room	0.50	External illuminated mirror[9]	40 W/each	Internal illuminated mirror[9]	120 W/each
Religious Worship Area	0.75	Decorative/Display	0.25		
Restrooms	0.60	Decorative/Display	0.35		
Stairwell	0.57	Decorative/Display	0.35		
Sports Arena – Playing Area: Class I Facility[11]	2.25	N/A	0.00		
Sports Arena – Playing Area: Class II Facility[11]	1.45	N/A	0.00		
Sports Arena – Playing Area: Class III Facility[11]	1.05	N/A	0.00		
Sports Arena – Playing Area: Class IV Facility[11]	0.71	N/A	0.00		
Transportation: Baggage Area	0.30	N/A	0.10		
Transportation: Concourse	0.35	Decorative/Display	0.35		
Transportation : Ticketing Area	0.40	Decorative/Display	0.20		
Transportation: Waiting area	0.45	Decorative/Display	0.20		
Videoconferencing Studio[12]	0.73	Decorative/Display	1.00		
Warehouse: Storage	0.40	N/A	0.00		
Warehouse: Shipping and Handling	0.60	N/A	0.00		

Footnotes to TABLE 140.6-C1:

1. Aging Eye/Low-vision areas can be documented as being designed to comply with the light levels in ANSI/IES RP-28 and are or will be licensed by local or state authorities for either senior long-term care, adult day care, senior support, and/or people with special visual needs
2. Tunable white luminaires capable of color change greater than or equal to 2000K CCT, or dim-to-warm luminaires capable of color change greater than or equal to 500K CCT, connected to controls that allows color changing of the luminaires.
3. Transition lighting OFF at night. Lighting power controlled by astronomical time clock or other control to shut off lighting at night. For aging eye/low vision lobbies: additional allowance only applies to area within 30 feet of an exit and not applicable to lighting in daylit zones. For parking garages: additional allowance only applicable to Daylight Adaptation Zones.
4. Detailed task work – Lighting provides high level of visual acuity required for activities with close attention to small elements and/or extreme close up work.
5. Specialized task work – Lighting provides for small-scale, cognitive or fast performance visual tasks; lighting required for operating specialized equipment associated with pharmaceutical/laboratorial activities.

6. Precision specialized work – Lighting for work performed within a commercial or industrial environment that entails working with low contrast, finely detailed, or fast moving objects
7. White board or chalk board. – Directional lighting dedicated to a white board or chalk board.
8. Daylight Adaptation Zones shall be no longer than 66 feet from the entrance to the parking garage.
9. Illuminated mirrors. Lighting shall be dedicated to the mirror
10. Portable lighting in office areas includes under shelf or furniture-mounted supplemental task lighting qualifies when controlled by a time clock or an occupancy sensor.
11. Class I Facility is used for competition play for 5000 or more spectators.
    Class II Facility is used for competition play for up to 5000 spectators.
    Class III Facility is used for competition play for up to 2000 spectators.
    Class IV Facility is normally used for recreational play and there is limited or no provision for spectators."
12. The additional videoconferencing lighting power shall be allowed provided the videoconferencing studio meets all the requirements of Section 601.3.1.3.3 [Section 140.6(c)2Gvii].

TABLE 601.3-C2 [TABLE 140.6-C2] AREA CATEGORY METHOD - LIGHTING POWER DENSITY VALUES (WATTS/FT²) FOR *GROUP R OCCUPANCIES AND COMMON USE OR PUBLIC USE AREAS*

Building Type/Use	Primary Function Area	Allowed Lighting Power Density for General Lighting (W/ft²)	Additional Lighting Power Qualified Lighting Systems	Additional Lighting Power Additional Allowance [3] (W/ft², unless noted otherwise)
Aging Eye/Low-vision[10]	Corridor Area	0.70	Decorative/Display	0.30
Aging Eye/Low-vision[10]	Dining	0.80	Decorative/Display	0.30
Aging Eye/Low-vision[10]	NA	0.80	Tunable white or dim-to-warm[9]	0.10
Aging Eye/Low-vision[10]	Lobby, Main Entry	0.85	Decorative/Display	0.30
Aging Eye/Low-vision[10]	Lobby, Main Entry	0.85	Transition Lighting OFF at night[11]	0.95
Aging Eye/Low-vision[10]	Lobby, Main Entry	0.85	Tunable white or dim-to-warm[9]	0.10
Aging Eye/Low-vision[10]	Lounge/Waiting Area	0.80	Decorative/Display	0.30
Aging Eye/Low-vision[10]	Lounge/Waiting Area	0.80	Tunable white or dim-to-warm[9]	0.10
Aging Eye/Low-vision[10]	Multipurpose Room	0.85	Decorative/Display	0.30
Aging Eye/Low-vision[10]	Multipurpose Room	0.85	Tunable white or dim-to-warm[9]	0.10
Aging Eye/Low-vision[10]	Religious Worship Area	1.00	Decorative/Display	0.30
Aging Eye/Low-vision[10]	Religious Worship Area	1.00	Tunable white or dim-to-warm[9]	0.10
Aging Eye/Low-vision[10]	Restroom	1.00	Decorative/Display	0.20
Aging Eye/Low-vision[10]	Stairwell	0.80	Decorative/Display	0.30
Audience Seating Area	NA	0.50	Decorative/Display	0.25
Auditorium Area	NA	0.70	Decorative/Display	0.45
Auto Repair / Maintenance Area	NA	0.55	Detailed Task Work[6]	0.20
Barber, Beauty Salon, Spa Area	NA	0.70	Detailed Task Work[6]	0.30
Barber, Beauty Salon, Spa Area	NA	0.70	Decorative/Display	0.25

Building Type/Use	Primary Function Area	Allowed Lighting Power Density for General Lighting (W/ft^2)	Additional Lighting Power Qualified Lighting Systems	Additional Lighting Power Additional Allowance [3] (W/ft^2, unless noted otherwise)
Civic Meeting Place Area	NA	0.90	Decorative/Display	0.25
Classroom, Lecture, Training, Vocational Area	NA	0.60	White or Chalk Board[1]	7 W/ft
Concourse and Atria Area	NA	0.60	Decorative/Display	0.25
Convention, Conference, Multipurpose and Meeting Area	NA	0.75	Decorative	0.25
Convention, Conference, Multipurpose and Meeting Area	NA	0.75	Wall Display MH <= 10'6"	2 W/ft
Convention, Conference, Multipurpose and Meeting Area	NA	0.75	Wall Display MH 10'7"- 14'	2.35 W/ft
Convention, Conference, Multipurpose and Meeting Area	NA	0.75	Wall Display MH > 14'	2.66 W/ft
Convention, Conference, Multipurpose and Meeting Area	NA	0.75	Floor Display and Task MH <= 10'6"	0.30
Convention, Conference, Multipurpose and Meeting Area	NA	0.75	Floor Display and Task MH 10'7"- 14'	0.35
Convention, Conference, Multipurpose and Meeting Area	NA	0.75	Floor Display and Task MH > 14'	0.40
Copy Room	NA	0.50	NA	NA
Corridor Area	NA	0.40	Decorative/Display	0.25
Dining Area	Bar/Lounge and Fine Dining	0.45	Decorative	0.35
Dining Area	Bar/Lounge and Fine Dining	0.45	Wall Display MH <= 10'6"	1.25 W/ft
Dining Area	Bar/Lounge and Fine Dining	0.45	Wall Display MH 10'7"- 14'	1.5 W/ft
Dining Area	Bar/Lounge and Fine Dining	0.45	Wall Display MH > 14'	1.7 W/ft

Building Type/Use	Primary Function Area	Allowed Lighting Power Density for General Lighting (W/ft²)	Additional Lighting Power Qualified Lighting Systems	Additional Lighting Power Additional Allowance [3] (W/ft², unless noted otherwise)
Dining Area	Bar/Lounge and Fine Dining	0.45	Floor Display and Task MH <= 10'6"	0.45
Dining Area	Bar/Lounge and Fine Dining	0.45	Floor Display and Task MH 10'7"- 14'	0.52
Dining Area	Bar/Lounge and Fine Dining	0.45	Floor Display and Task MH > 14'	0.60
Dining Area	Bar/Lounge and Fine Dining	0.45	General Lighting in the enclosed space of ceiling height > 10'	0.25
Dining Area	Cafeteria/Fast Food	0.45	Decorative/Display	0.25
Dining Area	Family and Leisure	0.40	Decorative/Display	0.25
Electrical, Mechanical, Telephone Rooms	NA	0.40	Detailed Task Work[6]	0.20
Exercise/Fitness Center and Gymnasium Area	NA	0.50	NA	NA
Financial Transaction Area	NA	0.70	Decorative/Display	0.25
Healthcare Facility and Hospitals	Exam/Treatment Room	1.15	NA	NA
Healthcare Facility and Hospitals	Imaging Room	0.60	Decorative/Display	0.20
Healthcare Facility and Hospitals	Imaging Room	0.60	Tunable white or dim-to-warm[9]	0.10
Healthcare Facility and Hospitals	Medical Supply Room	0.55	NA	NA
Healthcare Facility and Hospitals	Nursery	0.80	Tunable white or dim-to-warm[9]	0.10
Healthcare Facility and Hospitals	Nurse's Station	0.85	Tunable white or dim-to-warm[9]	0.10
Healthcare Facility and Hospitals	Nurse's Station	0.85	Detailed Task Work[6]	0.20
Healthcare Facility and Hospitals	Operating Room	1.90	NA	NA
Healthcare Facility and Hospitals	Patient Room	0.70	Decorative/Display	0.15
Healthcare Facility and Hospitals	Patient Room	0.70	Tunable white or dim-to-warm[9]	0.10
Healthcare Facility and Hospitals	Physical Therapy Room	0.75	Tunable white or dim-to-warm[9]	0.10
Healthcare Facility and Hospitals	Recovery Room	0.90	Tunable white or dim-to-warm[9]	0.10
Hotel Function Area	NA	0.85	Decorative/Display	0.25
Kitchen/Food Preparation Area	NA	0.95	NA	NA

Building Type/Use	Primary Function Area	Allowed Lighting Power Density for General Lighting (W/ft^2)	Additional Lighting Power Qualified Lighting Systems	Additional Lighting Power Additional Allowance [3] (W/ft^2, unless noted otherwise)
Laboratory, Scientific	NA	0.90	Specialized Task Work[8]	0.35
Laundry Area	NA	0.45	-	-
Library	Reading Area	0.80	Decorative/Display	0.25
Library	Stacks Area	1.00	NA	NA
Lobby, Main Entry	NA	0.70	Decorative	0.25
Lobby, Main Entry	NA	0.70	Wall Display MH <= 10'6"	3 W/ft
Lobby, Main Entry	NA	0.70	Wall Display MH 10'7"- 14'	3.5 W/ft
Lobby, Main Entry	NA	0.70	Wall Display MH > 14'	4 W/ft
Locker Room	NA	0.45	NA	NA
Lounge, Breakroom, or Waiting Area	NA	0.55	Decorative/Display	0.25
Manufacturing, Commercial and Industrial Work Area	Low Bay	0.60	Detailed Task Work[6]	0.20
Manufacturing, Commercial and Industrial Work Area	High Bay	0.65	Detailed Task Work[6]	0.20
Manufacturing, Commercial and Industrial Work Area	Precision	0.85	Precision Specialized Work[8]	0.70
Museum Area	Exhibition/Display	0.60	Decorative/Display	0.45
Museum Area	Restoration Room	0.70	Detailed Task Work[6]	0.35
Office Area	> 250 square feet	0.60	Decorative/Display and Portable lighting for office areas[5]	0.20
Office Area	≤ 250 square feet	0.65	Decorative/Display and Portable lighting for office areas[5]	0.20
Parking Garage Area	Parking Zone and Ramps	0.10	First ATM or Ticket Machine	100 W
Parking Garage Area	Parking Zone and Ramps	0.10	Additional ATM or Ticket Machine	50 W/each
Parking Garage Area	Daylight Adaptation Zones[2]	1.00	NA	NA
Pharmacy Area		1.00	Specialized Task Work[8]	0.35
Retail Sales Area	Grocery Sales	1.00	Decorative	0.35
Retail Sales Area	Grocery Sales	1.00	Wall Display MH <= 10'6"	6.6 W/ft
Retail Sales Area	Grocery Sales	1.00	Wall Display MH 10'7"- 14'	7.76 W/ft

Building Type/Use	Primary Function Area	Allowed Lighting Power Density for General Lighting (W/ft^2)	Additional Lighting Power Qualified Lighting Systems	Additional Lighting Power Additional Allowance [3] (W/ft^2, unless noted otherwise)
Retail Sales Area	Grocery Sales	1.00	Wall Display MH > 14’	8.8 W/ft
Retail Sales Area	Grocery Sales	1.00	Floor Display and Task MH <= 10’6”	0.60
Retail Sales Area	Grocery Sales	1.00	Floor Display and Task MH 10’7”- 14’	0.70
Retail Sales Area	Grocery Sales	1.00	Floor Display and Task MH > 14’	0.80
Retail Sales Area	Grocery Sales	1.00	General Lighting in the enclosed space of ceiling height > 10’	0.10
Retail Sales Area	Retail Merchandise Sales	0.95	Decorative	0.35
Retail Sales Area	Retail Merchandise Sales	0.95	Wall Display MH <= 10’6”	9.5 W/ft
Retail Sales Area	Retail Merchandise Sales	0.95	Wall Display MH 10’7”- 14’	11.2 W/ft
Retail Sales Area	Retail Merchandise Sales	0.95	Wall Display MH > 14’	12.7 W/ft
Retail Sales Area	Retail Merchandise Sales	0.95	Floor Display and Task MH <= 10’6”	0.45
Retail Sales Area	Retail Merchandise Sales	0.95	Floor Display and Task MH 10’7”- 14’	0.52
Retail Sales Area	Retail Merchandise Sales	0.95	Floor Display and Task MH > 14’	0.60
Retail Sales Area	Retail Merchandise Sales	0.95	Valuable Display Case	0.50
Retail Sales Area	Retail Merchandise Sales	0.95	General Lighting in the enclosed space of ceiling height > 10’	0.10
Retail Sales Area	Fitting Room	0.60	External Illuminated Mirror[4]	40 W/ea
Retail Sales Area	Fitting Room	0.60	Internal Illuminated Mirror[4]	120 W/ea
Religious Worship Area		0.95	Decorative/Display	0.25
Restrooms		0.65	Decorative/Display	0.35
Stairwell		0.60	Decorative/Display	0.35
Storage, Commercial/Industrial	Warehouse	0.40	NA	NA
Storage, Commercial/Industrial	Shipping and Handling	0.60	NA	NA
Sports Arena – Playing Area	Class I Facility[12]	2.25	NA	NA

Building Type/Use	Primary Function Area	Allowed Lighting Power Density for General Lighting (W/ft^2)	Additional Lighting Power Qualified Lighting Systems	Additional Lighting Power Additional Allowance [3] (W/ft^2, unless noted otherwise)
Sports Arena – Playing Area	Class II Facility[12]	1.45	NA	NA
Sports Arena – Playing Area	Class III Facility[12]	1.10	NA	NA
Sports Arena – Playing Area	Class IV Facility[12]	0.75	NA	NA
Theater Area	Motion picture	0.50	Decorative/Display	0.25
Theater Area	Performance	0.80	Decorative/Display	0.25
Transportation Function	Baggage Area	0.40	NA	NA
Transportation Function	Ticketing Area	0.45	Decorative/Display	0.20
Videoconferencing Studio	NA	0.90	Videoconferencing[13]	1.00
All other	**NA**	**0.40**	**NA**	**NA**

Footnotes for Table 601.3-C2 *[Table 140.6-C2]* are listed below.

1. White board or chalk board. – Directional *lighting* dedicated to a white board or chalk board.
2. *Daylight Adaptation Zones* shall be no longer than 66 feet from the entrance to the parking *garage*.
3. MH denotes the *luminaire* mounting height of the qualified *lighting* systems.
4. Illuminated mirrors. *Lighting* shall be dedicated to the mirror.
5. *Portable lighting* in *office areas* includes under shelf or furniture-mounted supplemental *task lighting* qualifies when controlled by a time clock or an *occupancy* sensor.
6. Detailed task work – *Lighting* provides high level of visual acuity required for activities with close attention to small elements and/or extreme close up work.
7. Specialized task work – *Lighting* provides for small-scale, cognitive or fast performance visual tasks; *lighting* required for operating specialized *equipment* associated with pharmaceutical/laboratorial activities.
8. *Precision* specialized work – *Lighting* for work performed within a commercial or industrial environment that entails working with low contrast, finely detailed, or fast moving objects.
9. *Tunable white luminaires* capable of color change greater than or equal to 2000K *CCT*, or *dim-to-warm luminaires* capable of color change greater than or equal to 500K *CCT*, connected to controls that allows color changing of the *luminaires*.
10. Aging Eye/Low-vision areas can be documented as being designed to comply with the light levels in ANSI/IES RP-28 and are or will be licensed by local or state authorities for either senior long-term care, adult day care, senior support, and/or people with special visual needs.
11. Transition *lighting* OFF at night. Lighting power controlled by astronomical time clock or other control to shut off *lighting* at night. Additional LPD only applies to area within 30 feet of an exit. Not applicable to *lighting* in *daylit zones*.
12. Class I Facility is used for competition play for 5000 or more spectators. Class II Facility is used for competition play for up to 5000 spectators. Class III Facility is used for competition play for up to 2000 spectators. Class IV Facility is normally used for recreational play and there is limited or no provision for spectators.
13. The additional videoconferencing lighting power shall be allowed provided the *videoconferencing studio* meets all the requirements of Section 601.3.1.1.3.3 *[Section 140.6(c)2Gvii]*.

4.4 Reference Appendices

There are no proposed changes to the reference appendices.