



DENVER AMENDMENT PROPOSAL FORM FOR PROPOSALS TO THE 2019 DENVER BUILDING CODE AMENDMENTS AND THE 2021 INTERNATIONAL CODES

DENVER
THE MILE HIGH CITY

2021 CODE DEVELOPMENT CYCLE

1) **Name:** John Arent **Date:** 11/28/2021
Email: jarent@noresco.com **Representing (organization or self):** Denver

2) One proposal per this document is to be provided with clear and concise information.

Is a separate graphic file provided (“X” to answer): ___ Yes or X No

3) Highlight the code and acronym that applies to the proposal

<u>Acronym</u>	<u>Code Name</u>	<u>Acronym</u>	<u>Code Name</u>
DBC-AP	Denver Building Code–Administrative Provisions	IPC	International Plumbing Code
IBC	International Building Code	IRC	International Residential Code
IECC	International Energy Conservation Code	IFGC	International Fuel Gas Code
IEBC	International Existing Building Code	IMC	International Mechanical Code
IFC	International Fire Code	DGC	Denver Green Code

Please provide all the following items in your amendment proposal.

<p>Code Sections/Tables/Figures Proposed for Revision : Instructions: If the proposal is for a new section, indicate (new), otherwise enter applicable code section. Revise the lighting power density allowances in IECC Section C405.3.2 – Strikeout/underline changes below Modify DGC Section 701.4.6.1.1 – Strikeout/underline changes below</p>																																																												
<p>Proposal: Instructions: Show the proposal using <u>strikeout</u>, <u>underline</u> format. Place an “X” next to the choice that best defines your proposal: <u>X</u> Revision ___ New Text ___ Delete/Substitute ___ Deletion</p> <p>Modify Table C405.3.2(1) as shown below:</p> <p style="text-align: center;">TABLE C405.3.2(1) INTERIOR LIGHTING POWER ALLOWANCES: BUILDING AREA METHOD</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="text-align: left;">BUILDING AREA TYPE</th> <th colspan="2">LPD (watts/ft²)</th> </tr> </thead> <tbody> <tr><td>Automotive facility</td><td>0.75</td><td>0.64</td></tr> <tr><td>Convention center</td><td>0.64</td><td>0.51</td></tr> <tr><td>Courthouse</td><td>0.79</td><td>0.74</td></tr> <tr><td>Dining: bar lounge/leisure</td><td>0.80</td><td>0.69</td></tr> <tr><td>Dining: cafeteria/fast food</td><td>0.76</td><td>0.66</td></tr> <tr><td>Dining: family</td><td>0.71</td><td><u>0.61</u></td></tr> <tr><td>Dormitory^{a, b}</td><td>0.53</td><td><u>0.52</u></td></tr> <tr><td>Exercise center</td><td>0.72</td><td><u>0.61</u></td></tr> <tr><td>Fire station^a</td><td>0.56</td><td><u>0.50</u></td></tr> <tr><td>Gymnasium</td><td>0.76</td><td><u>0.67</u></td></tr> <tr><td>Health care clinic</td><td>0.81</td><td><u>0.68</u></td></tr> <tr><td>Hospital^a</td><td>0.96</td><td><u>0.86</u></td></tr> <tr><td>Hotel/Motel^{a, b}</td><td colspan="2">0.56</td></tr> <tr><td>Library</td><td>0.83</td><td><u>0.72</u></td></tr> <tr><td>Manufacturing facility</td><td>0.82</td><td><u>0.60</u></td></tr> <tr><td>Motion picture theater</td><td colspan="2">0.44</td></tr> <tr><td>Multiple-family^c</td><td colspan="2">0.45</td></tr> <tr><td>Museum</td><td colspan="2">0.55</td></tr> <tr><td>Office</td><td colspan="2">0.64</td></tr> </tbody> </table>	BUILDING AREA TYPE	LPD (watts/ft ²)		Automotive facility	0.75	0.64	Convention center	0.64	0.51	Courthouse	0.79	0.74	Dining: bar lounge/leisure	0.80	0.69	Dining: cafeteria/fast food	0.76	0.66	Dining: family	0.71	<u>0.61</u>	Dormitory ^{a, b}	0.53	<u>0.52</u>	Exercise center	0.72	<u>0.61</u>	Fire station ^a	0.56	<u>0.50</u>	Gymnasium	0.76	<u>0.67</u>	Health care clinic	0.81	<u>0.68</u>	Hospital ^a	0.96	<u>0.86</u>	Hotel/Motel ^{a, b}	0.56		Library	0.83	<u>0.72</u>	Manufacturing facility	0.82	<u>0.60</u>	Motion picture theater	0.44		Multiple-family ^c	0.45		Museum	0.55		Office	0.64	
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Parking garage	0.18 0.12
Penitentiary	0.69 0.67
Performing arts theater	0.84
Police station	0.66
Post office	0.65 0.62
Religious building	0.67
Retail	0.84
School/university	0.72 0.67
Sports arena	0.76
Town hall	0.69
Transportation	0.50
Warehouse	0.45 0.41
Workshop	0.91 0.83

Modify Table C405.3.2(2) as shown below:

TABLE C405.3.2(2)
INTERIOR LIGHTING POWER ALLOWANCES:
SPACE-BY-SPACE METHOD

COMMON SPACE TYPES ^a	LPD (watts/ft ²)
Atrium	
Less than 40 feet in height	0.48
Greater than 40 feet in height	0.60
Audience seating area	
In an auditorium	0.61 0.44
In a gymnasium	0.23
In a motion picture theater	0.27
In a penitentiary	0.67 0.44
In a performing arts theater	1.16 0.75
In a religious building	0.72 0.65
In a sports arena	0.33 0.30
Otherwise	0.33 0.23
Banking activity area	0.61 0.55
Breakroom (See Lounge/breakroom)	
Classroom/lecture hall/training room	
In a penitentiary	0.89 0.81
Otherwise	0.71 0.65
Computer room, data center	0.94 0.85
Conference/meeting/multipurpose room	0.97 0.88
Copy/print room	0.31
Corridor	
In a facility for the visually impaired (and not used primarily by the staff) ^b	0.71.
In a hospital	0.71 0.65
Otherwise	0.41 0.37
Courtroom	1.20 0.98
Dining area	
In bar/lounge or leisure dining	0.86 0.62
In cafeteria or fast food dining	0.40 0.36
In a facility for the visually impaired (and not used primarily by the staff)	1.27
In family dining	0.60 0.54
In a penitentiary	0.42
Otherwise	0.43 0.39
Electrical/mechanical room	0.43 0.39
Emergency vehicle garage	0.52 0.47
Food preparation area ^x	1.09 0.92
Guestroom ^{c, d}	0.41
Laboratory	
In or as a classroom	1.11 1.04
Otherwise	1.33 1.24
Laundry/washing area	0.53 0.43
Loading dock, interior	0.88 0.51

Lobby	
For an elevator	<u>0.65-0.52</u>
In a facility for the visually impaired (and not used primarily by the staff) ^b	<u>1.69-1.30</u>
In a hotel	<u>0.51-0.46</u>
In a motion picture theater	0.23
In a performing arts theater	<u>1.25-0.82</u>
Otherwise	<u>0.84-0.76</u>
Locker room	<u>0.52-0.45</u>
Lounge/breakroom	
In a healthcare facility	<u>0.42-0.38</u>
Otherwise	<u>0.59-0.44</u>
Office	
Enclosed	<u>0.74-0.67</u>
Open plan	<u>0.61-0.55</u>
Parking area, interior	<u>0.15-0.11</u>
Pharmacy area	<u>1.66-1.23</u>
Restroom	
In a facility for the visually impaired (and not used primarily by the staff) ^b	<u>1.26-0.81</u>
Otherwise	<u>0.63-0.57</u>
Sales area	<u>1.05-0.95</u>
Seating area, general	0.23
Stairwell	<u>0.49-0.45</u>
Storage room	<u>0.38-0.35</u>
Vehicular maintenance area	<u>0.60-0.53</u>
Workshop	<u>1.26-1.09</u>
BUILDING TYPE SPECIFIC SPACE TYPES.	LPD (watts/ ft²)
Automotive (see Vehicular maintenance area)	
Convention Center—exhibit space	<u>0.61-0.55</u>
Dormitory—living quarters ^{c, d}	<u>0.50-0.46</u>
Facility for the visually impaired ^b	
In a chapel (and not used primarily by the staff)	0.70
In a recreation room (and not used primarily by the staff)	<u>1.77-1.53</u>
Fire Station—sleeping quarters ^c	<u>0.23-0.19</u>
Gymnasium/fitness center	
In an exercise area	<u>0.90-0.50</u>
In a playing area	<u>0.85-0.75</u>
Healthcare facility	
In an exam/treatment room	<u>1.40-1.16</u>
In an imaging room	<u>0.94-0.85</u>
In a medical supply room	<u>0.62-0.54</u>
In a nursery	0.92
In a nurse's station	<u>1.17-0.75</u>
In an operating room	<u>2.26-1.87</u>
In a patient room ^c	<u>0.68-0.45</u>
In a physical therapy room	<u>0.91-0.85</u>
In a recovery room	<u>1.25-0.89</u>
Library	
In a reading area	<u>0.96-0.77</u>
In the stacks	<u>1.18-1.08</u>
Manufacturing facility	
In a detailed manufacturing area	0.80
In an equipment room	<u>0.76-0.61</u>
In an extra-high-bay area (greater than 50 feet floor-to-ceiling height)	<u>1.42-0.73</u>
In a high-bay area (25–50 feet floor-to-ceiling height)	<u>1.24-0.58</u>
In a low-bay area (less than 25 feet floor-to-ceiling height)	<u>0.86-0.61</u>
Museum	

In a general exhibition area	0.31
In a restoration room	1.10 <u>0.77</u>
Performing arts theater—dressing room	0.41 <u>0.35</u>
Post office—sorting area	0.76 <u>0.66</u>
Religious buildings	
In a fellowship hall	0.54 <u>0.42</u>
In a worship/pulpit/choir area	0.85 <u>0.77</u>
Retail facilities	
In a dressing/fitting room	0.51 <u>0.49</u>
In a mall concourse	0.82 <u>0.53</u>
Sports arena—playing area	
For a Class I facility ^e	2.94 <u>2.26</u>
For a Class II facility ^f	2.01 <u>1.45</u>
For a Class III facility ^g	1.30 <u>1.08</u>
For a Class IV facility ^h	0.86 <u>0.72</u>
Transportation facility	
At a terminal ticket counter	0.51 <u>0.48</u>
In a baggage/carousel area	0.39 <u>0.35</u>
In an airport concourse	0.25 <u>0.22</u>
Warehouse—storage area	
For medium to bulky, palletized items	0.33 <u>0.27</u>
For smaller, hand-carried items	0.69 <u>0.60</u>

Modify Section 701.4.6.1.1 of the Denver Green Code as shown below:

701.4.6.1.1 (7.4.6.1.1) Interior Lighting Power Densities (LPDs). The total connected interior lighting power calculated in accordance with Section C405.3.1 shall be less than ~~70~~ 75 percent of the total lighting power allowance calculated in accordance with Section C405.3.2.

Supporting Information :

All proposals must include a written explanation and justification as to how they address physical, environmental, and/or customary characteristics that are specific to the City and County of Denver. The following questions must be answered for a proposal to be considered.

- Purpose: What does your proposal achieve? This proposal reduces the allowable lighting power in buildings to keep pace with improving efficiency of lighting systems.
- Reason: Why is your proposal necessary? The efficiency of lighting systems continues to improve, although values currently in the IECC already assume the use of LED lighting. Improvements in lighting efficiency and in lighting design allow for further reductions in allowable lighting power. Power decreases like these are necessary to Denver to reach its goals for low energy buildings.
- Substantiation: Why is your proposal valid? (i.e. technical justification) This proposal updates the lighting allowance in the IECC with the values provided in Tables 701.4.6.1A and 701.4.6.1B of the IgCC. These changes are generally about a 10% reduction, although other percentage changes are proposed in many specific space types. This proposal further modifies the DGC which previously required that lighting power be less than 70% of the allowance calculated in the IECC. With the approximately 10% reduction in IECC allowances, modifying the DGC value to 75% still results in a reduction in allowable lighting power compared to the current version.

Bibliography and Access to Materials (as needed when substantiating material is associated with the amendment proposal):

Other Regulations Proposed to be Affected

***For proposals to delete content from the 2019 Denver Green Code in conjunction with adding it to other mandatory Denver codes and/or regulations, only.**

Please identify which other mandatory codes or regulations are suggested to be updated (if any) to accept relocated content.

Referenced Standards :

List any new referenced standards that are proposed to be referenced in the code.

None

Impact :

How will this proposal impact cost and restrictiveness of code? ("X" answer for each item below)

Cost of construction: ___ Increase Decrease ___ No Impact

Cost of design: Increase ___ Decrease ___ No Impact

Restrictiveness: ___ Increase ___ Decrease No Impact