

*Comment Received From: Statewide Utility Codes and Standards Enhancement Team
Submitted On: 6/18/2021
Docket Number: 21-BSTD-01*

Comments on Indoor Lighting Beauty Salon

Additional submitted attachment is included below.

Comment on Nonresidential Lighting for 45-Day Language

CALIFORNIA STATEWIDE UTILITY CODES AND STANDARDS TEAM

June 18, 2021

1. Introduction

The California Statewide Utility Codes and Standards Enhancement Team (Statewide CASE Team) appreciates the opportunity to participate in the review of the May 6, 2021 Express Terms 2022 Energy Code, Title 24 Parts 1 and 6 (45-Day Express Terms).¹

The Statewide CASE Team actively supports code-setting bodies in developing and revising building energy codes and standards. The program's objective is to achieve significant energy savings and assist in meeting other energy-related state policy goals through the development of reasonable, responsible, and cost-effective code changes. Three California Investor Owned Utilities – Pacific Gas and Electric Company, San Diego Gas and Electric, and Southern California Edison – and two Publicly Owned Utilities – Los Angeles Department of Water and Power and Sacramento Municipal Utility District (herein referred to as the Statewide CASE Team when including the CASE Author) – sponsored this effort. The Statewide CASE Team is actively supporting the California Energy Commission (Energy Commission) in updating the California Energy Code (Title 24, Part 6) for the 2022 code update cycle. Through CASE Reports, the Statewide CASE Team has provided the Energy Commission with the technical and cost-effectiveness information required to make informed judgments on proposed standards for promising energy efficiency design practices and technologies.

The Statewide CASE Team encourages the Energy Commission to consider the recommendations presented in this document.

2. Update to Barber, Beauty Salon, Spa Area Category LPD

After evaluating a broader range of design intents for Barber, Beauty Salon, Spa Area, and recognizing that these occupancies are not covered under the Tailored Method, the

¹CEC Docket #21-BSTD-01, Document #237717

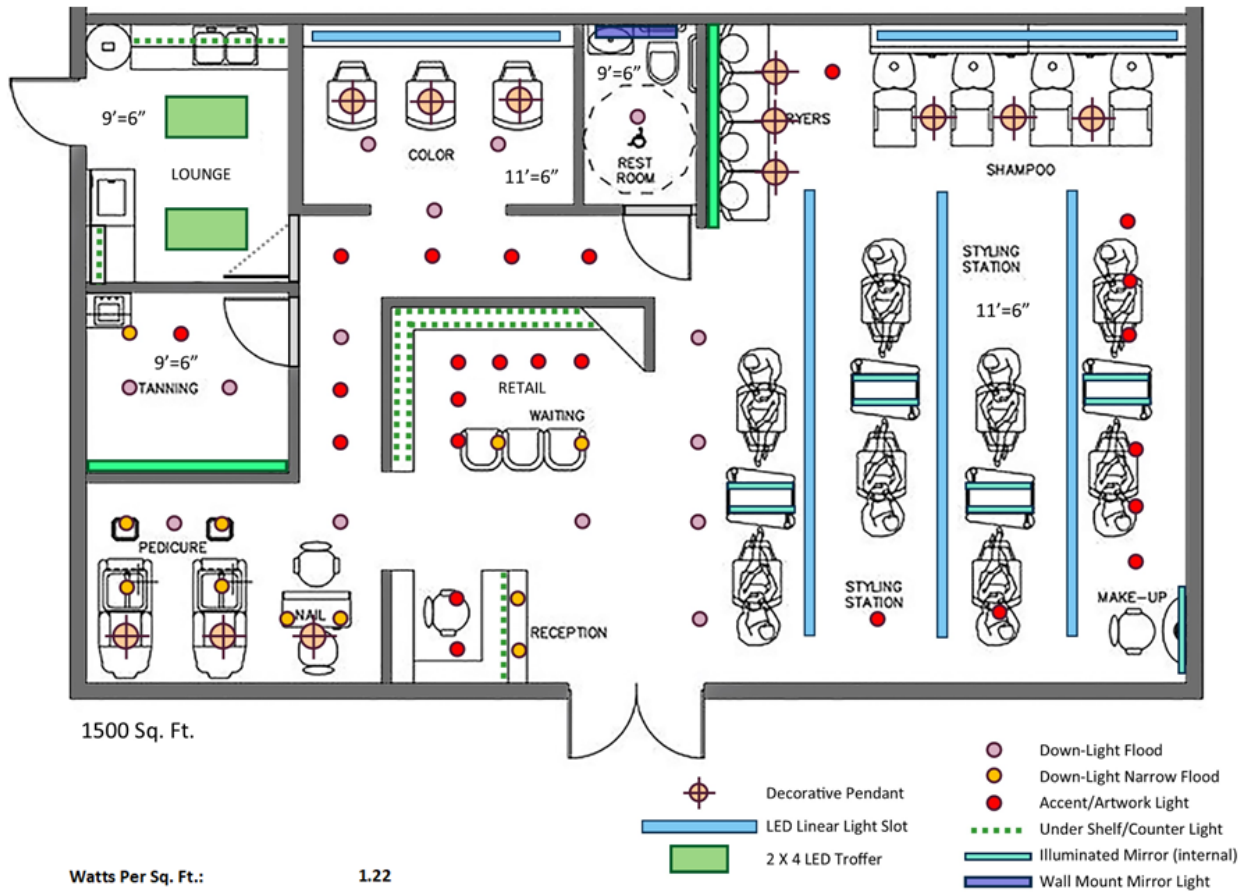
<https://efiling.energy.ca.gov/GetDocument.aspx?tn=237717&DocumentContentId=70942>

Statewide CASE Team recommends a moderate increase in the LPD in the 45-Day Express Terms but less than the LPDs in the 2019 Title 24, Part 6 Standards.

In the 2019 Title 24, Part 6 Standards, the Table 140.6-C Area Category Method allowances were 0.80 W/ft² general lighting, 0.20W/ft² task lighting and 0.30 W/ft² ornamental lighting for a maximum allowable LPD of 1.30 W/ft². The 45-Day Express Terms had proposed Area Category method allowances of 0.65 W/ft² general lighting, 0.20W/ft² task lighting and 0.25 W/ft² decorative/display lighting for a maximum allowable LPD of 1.10 W/ft². The Statewide CASE Team had proposed the same values based on an analysis of a design that would exceed the illuminance levels recommended by the Illuminating Engineering Society. The reduction in decorative/display lighting was based on an analysis of the improvements in efficacy and optical efficiency of high color rendering index (CRI) decorative and display luminaires.

The Statewide CASE Team is recommending that general lighting LPD be increased from 0.65 W/ft² to 0.70 W/ft² and the detailed task allowance from 0.20 W/ft² to 0.30 W/ft² and display/decorative allowance remain the same at 0.25 W/ft² for a maximum allowable LPD of 1.25 W/ft². The rationale is to allow “high end” designs for spas and the like where lighting is providing not only high light levels for beauty salon tasks, such as hair cutting and with high color rendering index for hair tinting, but also decorative and display lighting for illuminating artwork and with additional light sources, such as lights that are built into mirrors. A graphic of these designs is shown in Figure 1.

As the calculation in the graphic shows, this design, which has design features in demand by some of the beauty salons, cannot meet the 45-Day Express Terms total wattage target of 1.10 W/ft². This design includes circulation lighting, task lighting above the various workstations, includes illuminated mirrors, display lighting or artwork, and task lighting for the financial transaction. There are many activities and different tasks occurring within a relatively small space. This design could barely comply if higher efficacy but lower quality light sources with a color fidelity of only 80 CRI were used. This would not be keeping with the intent of providing comparable amenity with less energy.



1500 Sq. Ft.

Watts Per Sq. Ft.:	1.22
General/Circulation FC:	16
FC Target at Styling Salon Area:	50
FC Target at Shampo Area:	58
FC Target at Dryer Area:	30
FC Target at Coloring Area:	80
FC Target at Pedicure Area:	70
FC Target in Tanning Salon:	20
FC Target Retail Area (general):	30
FC Target Retail Accent/Display:	110-250
FC Target on Art/Grapihics :	45-60
FC Target for Wall Grazing:	30
FC Target in Restroom:	18
FC Target in Employee Lounge	40

CALIFORNIA TITLE 24 MAXIMUM ALLOWED LPD - SALON/SPA

CURRENT: T24-2019 Area Compliance: 1.30 W Sq. Ft.
EXP. TERMS: T24-2022 Area Compliance: 1.10 W Sq. Ft.
Proposed: T24-2022 Area Compliance: 1.25 W Sq. Ft.

Figure 1: Small Beauty Salon

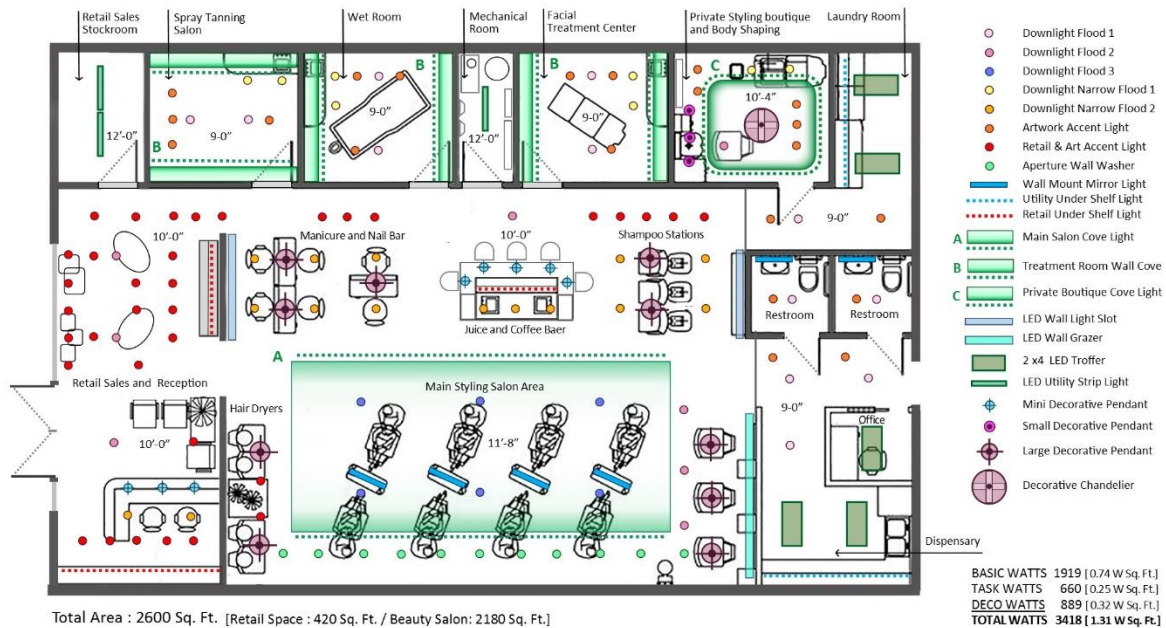


Figure 2: Luxury Beauty Parlor/ Spa.

The revised lighting wattage allowance is proposed in lieu of having a Tailored Lighting Method approach for high end beauty salons. The sample designs developed here would accommodate most predicted needs for beauty salons. If even more lighting power was desired as shown in the luxury design in Figure 2 with lighting power density of 1.31 W/ft², this could be accommodated by installing institutional tuning the lighting and making use of the 10 percent power adjustment factor and drop the adjusted lighting power to 1.18 W/ft².

Though the total allowable wattage with PAFs can be as high as 1.25 W/ft, for a more utilitarian space without much task or decorative/display lighting, one would be limited to the 0.70 W/ft² for general lighting and whatever else could be shown to be represented as task lighting or display/decorative.

3. Proposed Code Language

Recommended revisions to the 45-Day Language are included in this document in **red**. The Statewide CASE Team's recommended language insertions are underlined and recommended language deletions are **struck**.

SECTION 140.6 – PRESCRIPTIVE REQUIREMENTS FOR INDOOR LIGHTING

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TABLE 140.6-C AREA CATEGORY METHOD - LIGHTING POWER DENSITY VALUES
(WATTS/FT²)

Primary Function Area	Allowed Lighting Power Density for General Lighting (W/ft ²)	Additional Lighting Power ¹	
		Qualified Lighting Systems	Additional Allowance (W/ft ² , unless noted otherwise)
Barber, Beauty Salon, Spa Area	0.65 0.70	Detailed Task Work ⁷	0.20 0.30
		Display/Decorative	0.25