

DOCKETED	
Docket Number:	19-BSTD-03
Project Title:	2022 Energy Code Pre-Rulemaking
TN #:	237110
Document Title:	Wattstopper Legrand Comments - Title 24 Part 6 Comments on Pre-Rulemaking Express Terms
Description:	N/A
Filer:	System
Organization:	Wattstopper / Legrand
Submitter Role:	Public
Submission Date:	3/9/2021 7:34:53 PM
Docketed Date:	3/10/2021

Comment Received From: Wattstopper / Legrand
Submitted On: 3/9/2021
Docket Number: 19-BSTD-03

Title 24 Part 6 Comments on Pre-Rulemaking Express Terms

Additional submitted attachment is included below.

March 9, 2022

California Energy Commission
Commissioner Andrew McAllister
1516 Ninth Street
Sacramento, CA 95814-5512

RE: [Docket No. 19-BSTD-03](#) – 2022 Title 24 Part 6 Pre-Rulemaking Express Terms

Legrand, especially its California based Wattstopper lighting control brand, appreciates this opportunity to submit comments on the Pre-Rulemaking Express Terms draft for the 2022 Title 24 Standard. We gratefully acknowledge the significant work put forward by all proposal teams, commission staff, commission consultants and other contributors to improve the energy efficiency and applicability of the Title 24 lighting and lighting control related sections.

Given the limited amount of time allowed to review the Pre-Rulemaking Express Terms language, at this time we'll focus only on the key sections where we either applaud the changes in the code, or would like to raise specific concerns and provide suggestions.

Section 110.12 – Demand Response

We view the previous move of all Demand Management requirements in the 2019 Code to a single section to have been highly successful, especially since the change promoted an overall holistic approach to the topic for new projects. Regarding the proposed changes in the 2022 Code section, would offer the following comments

110.12(a)2 – Demand responsive controls

All demand responsive controls shall be capable of communicating to the VEN using Wi-Fi, ZigBee, BACnet, Ethernet, hard-wiring, or any other bi-directional communication pathway.

We've raised the issue in the past that the use of the phrase "hard-wiring" is problematic because it is not included in Section 100.1 - Definitions. Some installers have taken this phrase to mean a simple initiation contact closure to demand responsive lighting controls, while others have suggested it was intended to mean a Powerline Carrier method. Additionally, the addition of the new clause "or any other bi-directional communication pathway" is unclear – is it saying that allowed hard-wiring solutions are expected to be bi-directional, or does it not confer an expectation on hard-wiring solutions but that any other communication type that is bi-directional will be allowed? We believe that if "hard-wiring" will be included in the code it needs to be clearly defined

in the definition section and that the ending clause be re-written to be absolutely clear about hard-wiring or other bi-directional communications.

110.12(c) – Demand Responsive Lighting Controls

Nonresidential lighting systems subject to the requirements of Section 130.1(b) with a general lighting power of 4,000 watts or greater, shall have controls that are capable of automatically reducing lighting power in response to a Demand Response Signal. General lighting shall be reduced in a manner consistent with the uniform level of illumination requirements in TABLE 130.1-A.

1. For compliance testing, the lighting controls shall demonstrate a lighting power reduction in controlled spaces of a minimum of 15 percent below the total installed lighting power. The controls may provide additional demand responsive functions or abilities.

We understand there are benefits to calling out a limit based on wattage rather than a projects overall square foot measurement. However, we're concerned that the wattage is based on General Lighting, but compliance testing is based on total installed lighting power.

Previous conversations with individuals associated with the CEC had verified our understanding regarding Demand Responsive Lighting – that when a space met the requirements in the code, that all lighting in the area should be included in the total lighting power calculation and it's required reduction. This is made clear in the Compliance Testing subsection but might be misinterpreted based on the updated introductory section. To make clear the intent of the code we would suggest that the initial sentence be edited as follows (changed text underlined):

Nonresidential lighting systems subject to the requirements of Section 130.1(b) with a general lighting power of 4,000 watts or greater, shall have controls that are capable of automatically reducing all lighting power in response to a Demand Response Signal.

110.12(e) – Demand Responsive Controlled Receptacles

Wanted to take the opportunity to thank the CEC for their decision to include this new section in the code. With the significant reduction of lighting power loads, plug loads have become larger components of building's overall energy use. Adding this section (which applies only when both Demand Responsive Lighting Controls AND Controlled Receptacles are required) ensures that the building owner will have the opportunity to include individual the receptacle load circuits in their Demand Management Sequence of Operation reduction strategy should they so choose.

Section 120.1(d)5 – Occupant Sensor Ventilation Control Device

The previous language in this section could be confusing about the timing between a space becoming unoccupied and when the HVAC hardware had to go into occupied-standby mode. In fact, during a call to the CEC's Hotline just before the 2019 Energy Code took effect, we were given an incorrect interpretation by the person we spoke with that day. We want to take the opportunity to thank the CEC for the edits made in this section of the Energy Code which now clearly indicate the required Sequence of Operation when Occupancy Sensors are used to control space ventilation.

Section 130.1(c)6D – Occupancy Sensors in Large Office Spaces

While a new Title 24 Code requirement, the language in this section is similar to that in the 2018 IECC Energy Code. We appreciate the work done by Energy Solutions and the CEC to bring this requirement into the 2022 Title 24 Energy Code. We were initially concerned that some of the proposed language for this section might make implementation difficult for the design community,

and so we responded to the initial draft CASE Study. We're very thankful that the language now shown in the code eliminates our stated concerns.

Wattstopper believes this new requirement can help usher in designs with more granular control capability, improve the way open offices are designed in California, and with greater adoption of Luminaire Level Lighting Controls make it easier in the future to meet the Lighting Alterations section of the code.

Section 150.0(k)2F – Residential Automatic Off Controls

The section of the residential code which required Dimming Controls for certain luminaires, there is a newly revised Exemption 2 that states: "Luminaires connected to a circuit with controlled lighting power of less than 50 watts are not required to have dimming controls."

We can't help but think this may be a step backward from the current code. While absolutely acknowledging that the reduction in loads for LED lighting have extended the calculated ROI for these devices, there are certainly benefits for users to be able to set lighting levels in a space to levels other than full on and full off. When the only choice for lighting is full on or off, owners are denied the opportunity to set a low level that might allow them to work or relax comfortably in their homes, help prevent them from coming full awake when lights are turned on late at night, or to reduce but not extinguish their lighting levels should unusual events cause excessively high electrical rates in California.

Table 150.0-A – Classification of High Luminous Efficacy Light Sources

Soon after the COVID-19 pandemic hit, we were contacted by several designers looking to add ultraviolet fixtures to their client's buildings. At the time, they wondered how these fixtures might be impact based on Title 24. Being unsure, we contacted the CEC and were told that since these fixtures were not intended to provide visible light, they were not governed by Title 24's lighting requirements.

Based on the above, we don't understand why Table 150.0-A includes any reference to "Infrared and ultraviolet light sources".

Section 160.0 Onward – General Comment on Multifamily Buildings Requirements

Having participated in several meetings since 2019 about simplifying the language in the Energy Code, we were hoping to see those efforts bear fruit when we started reviewing the Pre-Rulemaking Express Terms Document. Unfortunately, we did not see places where the suggestions raised at these meetings were incorporated – in fact it appears the code has moved significantly in the other direction with the decision to include entirely new sections for Multifamily Buildings.

Not once in all the training presentations on Title 24 we've participated in has anyone said that what the code needed was over a hundred pages of additional text for Multifamily buildings that for the most part restates the earlier sections of the code. And while most of the language is the same as the earlier language, we can't help but worry as the code language starts diverging in the future that designers will have a very difficult time worrying about the possible differences in the code when an office space is located in a Multifamily Building verses one is a non-residential building, or when dealing with exterior lighting in a Single Family dwelling verses a Multifamily one.

We did examine the new Multifamily sections in detail, but on a cursory review with another Energy Code expert we found 3 concerning discrepancies between the earlier language in the non-residential sections and the new sections. These discrepancies, and the totally different

numbering schemes in the new sections, serve as examples as to why we believe this will be confusing for designers to be able to track changes and provide code compliant project designs.

Example 1 (underlined text in body illustrates differences) – Why does one include an exemption for lights 40W or less, but not the other?

Section 150.0(k)3A. states:

A. For single-family residential buildings, outdoor lighting permanently mounted to a residential building or to other buildings on the same lot shall meet the requirement in item i and the requirements in either item ii or item iii:

- i. Controlled by a manual ON and OFF control switch that permits the automatic actions of items ii or iii below; and
- ii. Controlled by a photocell and a motion sensor; or
- iii. Controlled by an astronomical time clock control or an automatic time switch control. Time switch or time clock controls that override to ON shall not be allowed unless the override automatically returns the automatic control to its normal operation within 6 hours.

While 160.5(a)3A. states:

“A. Outdoor luminaires connected to a circuit with controlled lighting power greater than 40 watts shall meet the requirement in item i and the requirements in either item ii or item iii:

- i. Controlled by a manual ON and OFF control switch that permits the automatic actions of items ii or iii below; and
- ii. Controlled by a photocell and a motion sensor; or
- iii. Controlled by an astronomical time clock control or an automatic time switch control. Time switch or time clock controls with manual override to ON shall not be allowed unless the override automatically returns the automatic control to its normal operation within 6 hours.

Example 2 – Why does one Section require a 50-90% reduction, but the other a 60-90% reduction?

Section 130.2(c)2B states:

B. Automatic scheduling controls shall be capable of reducing the outdoor lighting power by at least 50 percent and no more than 90 percent, and separately capable of turning the lighting OFF, during scheduled unoccupied periods.

While 160.5(c)2Bii states:

ii. Automatic scheduling controls shall be capable of reducing the outdoor lighting power by at least 60 percent and no more than 90 percent, and separately capable of turning the lighting OFF, during scheduled unoccupied periods.

Example 3 – Example of difficulty tracking changes between the old and new sections

Table 141.0-F – Control Requirements for Indoor Lighting System Alterations – 3rd column header states:

Projects complying with Sections 141.0(b)2lii or 141.0(b)2liii

Table 180.2-D – Control Requirements for Indoor Lighting System Alterations for Common Services Areas – 3rd column header states:

Projects complying with Sections 180.2(b)4Bivb and 180.2(b)4Bivc

If there is any discussion point in this letter where the CEC finds our concerns or suggestions unclear, we hope that you'll consider contacting us for clarifications. We've certainly enjoyed the opportunities we've had in the past to discuss the Energy Code language by phone, email, and in person, and hope to continue that positive relationship for many years to come.

Respectfully Submitted,



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