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IECC: C405.2.3.1, C406.2.5.2, C408.3.1.4, C408.3.1.5 (New)

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2024 International Energy Conservation Code [RE Project]

Revise as follows:

C405.2.3.1 Dimming control function. Spaces required to havedimming control shall be provided with manual controls that allow lights to be dimmed from full output to 10 percent of full power or lower with continuous dimming, as well asturning lights off. Manual control shall be provided within each room to dim lights.

Exception: Manual dimming control is not required in spaces where *high-end trim* lighting controls are provided which comply with following: ~~lighting controls have a high-end trim setting and have undergone functional testing in accordance with Section C408.3.1.4.~~

1. The calibration adjustment equipment is located for *ready access* only by authorized personnel. pant sensors will be required in more space types for base code compliance.
2. Lighting controls with ready access for users cannot increase the lighting power above the maximum level established by the *high-end trim* controls.

C406.2.5.2 L02 ~~Enhanced digital lighting controls~~ *High-end trim* lighting controls. Measure credits shall be achieved where qualifying spaces are no less than 50 percent of the ~~gross~~ project interior floor area exclusive of *dwelling and sleeping units* ~~within the project shall comply with the requirements of this section.~~ Qualifying spaces are those where general lighting is controlled by *high-end trim* lighting controls complying with the following:

1. The calibration adjustment equipment is located for *ready access* only by authorized personnel.
2. Lighting controls with *ready access* for users cannot increase the lighting power above the maximum level established by the *high-end trim* controls.
3. Construction documents shall state that maximum light output or power of *general lighting* in spaces contributing to the qualifying floor area shall be not greater than 85 percent of full power or light output.
4. *High-end trim* lighting controls shall be tested in accordance with Section C408.3.1.5.

~~1. Lighting controls function. Interior general lighting shall be located, scheduled and operated in accordance with Section C405.2 and shall be configured with the following enhanced control functions:~~

~~1.1. Luminaires shall be configured for continuous dimming.~~

~~1.2. Each luminaire shall be individually addressed.~~

~~**Exceptions:**~~

~~1. Multiple luminaires mounted on no more than 12 linear feet (3.66 m) of a single lighting track and addressed as a single luminaire.~~

~~2. Multiple linear luminaires that are ganged together to create the appearance of a single longer fixture and addressed as a single luminaire, where the total length of the combined luminaires is not more than 12 feet (3.66 m).~~

~~1.3. No more than eight luminaires within a daylight zone are permitted to be controlled by a *single daylight responsive control.*~~

~~2 Luminaires shall be controlled by a digital control system configured with the following capabilities:~~

~~2.1. Sheduling and illumination levels of individual luminaires and groups of luminaires are capable of being reconfigured through the system.~~

~~2.2. Load shedding.~~

~~2.3. Occupancy sensors and daylight responsive controls are capable of being reconfigured through the system.~~

~~3. Construction documents shall include submittal of a Sequence of Operations, including a specification outlining each of the functions required by this section.~~

~~4. High-end trim. Luminaires shall be initially configured with the following:~~

~~4.1. High-end trim, setting the maximum light output of individual luminaires or groups of luminaires to support visual needs of a space or area, shall be implemented and construction documents shall state that maximum light output or power of controlled lighting shall be initially reduced by atleast 15 percent from full output. The average maximum light output or power of the controlled lighting shall be documented without high-end trim and with high-end trim to verify reduction of light output or power by at least 15 percent when tuned.~~

~~4.2. Where lumen maintenance control is used, controls shall be configured to limit the initial maximum lumen output or maximum lighting power to 85 percent or less of full light output or full power draw and lumen maintenance controls shall be limited to increasing lighting power by 1 percent per year.~~

~~4.3. High-end trim and lumen maintenance controls shall be accessible only to authorized personnel.~~

~~Where general lighting in more than 50 percent of the gross lighted floor area receives high-end trim, the~~ The base credits from Tables C406.1.2(1) through C406.1.2(9) shall be prorated as follows:

~~*[Tuned lighted fl oor area,%]*~~ HET ~~×~~ *[Base energy credits for C406.2.5.2] / 50%*

HET = Floor area of qualifying spaces where *general lighting* is provided with *high-end trim* lighting controls complying with this section, expressed as a percentage of total interior floor area excluding *dwelling and sleeping* units.

C408.3.1.4 *High-end trim* controls. Where lighting controls are configured for *high-end trim* ~~trims~~, verify the following:

1. ~~That high~~*High-end trim* maximum level has been set.
2. ~~That the~~ The calibration adjustment equipment is located for *ready access* only by authorized personnel.
3. ~~That lighting~~ Lighting controls with *ready access* for users cannot increase the lighting power above the maximum level established by the *high-end trim* controls.

Add new text as follows:

C408.3.1.5 *High end trim* lighting control verification for Additional Efficiency Credit L02. . For the qualifying spaces associated with the project receiving additional efficiency credits in Section C406.2.5.2, the following shall be documented while daylight responsive controls are not reducing lighting power:

1. The maximum setting for power or light output for each control group of *general lighting* luminaires.
2. The *high-end trim* setting for power or light output for each control group of *general lighting* luminaires.
3. For projects with seven or fewer claimed qualifying spaces, the reduction in light level or reduction in power due to *high-end trim* shall be tested in all spaces and shown to reduce the general lighting power or light level to not greater than 85 percent of full power or light output. For projects with more than seven claimed qualifying spaces, the reduction in light level or reduction in power due to *high-end trim* shall be tested in not less than 10 percent of spaces, and no less than seven spaces, and shown to reduce general lighting power or light level to not greater than 85 percent of full power or light output. Where more than 30 percent of the tested spaces fail, the remaining qualifying spaces shall be tested.
4. Summarize the reduction in *general lighting* power resulting from the *high-end trim* setting for each qualifying space and the floor area of each qualifying space.
5. Summarize the fraction of total floor area for spaces where *high-end trim* reduces *general lighting* power to not greater than 85 percent of full power or light output.

Reason: Additional efficiency credit L02 in Public Comment Draft #1 combines two different lighting control strategies: high-end trim, and digitally addressable luminaires.

High-end trim can be accomplished at a reasonable cost and is already recognized in C405.2.3.1 as an alternate for dimming controls. It also has clear and demonstrated energy savings.

Digitally addressable luminaires are extremely expensive, and do not have any demonstrated energy savings.

This proposal dramatically simplifies L02 by eliminating the requirement for digitally addressable luminaires and focusing the credit entirely on high-end trim.

This proposal also clarifies base code requirements for high-end trim lighting controls and adds new functional testing and documentation requirements for projects pursuing energy credit L02.

Cost Impact: The code change proposal will neither increase nor decrease the cost of construction.

This code change proposal will neither increase nor decrease the cost of construction for projects which do not pursue L02. For projects which do pursue L02, the cost of construction will be dramatically reduced.