Residential Exterior Lighting

IECC: **R404.1.1** (New)

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2018 International Energy Conservation Code

Add new text as follows:

R404.1.1 Exterior lighting. Connected exterior lighting for Group R-2, R-3 and R-4 buildings shall comply with Section C405.4 of the International Energy Conservation Code—Commercial Provisions.
Exceptions:

1. Solar-powered lamps not connected to any electrical service
2. Luminaires controlled by a motion sensors

Reason Statement: The IECC does not have any specific requirements for exterior lighting for residential buildings. This may not be a significant issue for single-family homes, duplexes and townhomes, but it is quite significant for Type-R occupancies like multifamily that are far more likely to have parking lots and other exterior lighting like their counterparts subject to the commercial code. A 4-story multifamily building with exactly the same systems and layout would therefore be subject to exterior lighting requirements while a 3-story variation would not. This creates a loophole in the code for low-rise R-occupancies.
This proposal directs exterior lighting for these occupancies to the commercial code and its LPD requirements. Small R-occupancy buildings are little different than small commercial buildings which are already subject to those requirements. The proposal exempts solar-powered lighting and any lighting controlled by a motion sensor.

When applied to the low-rise multifamily prototype developed by Pacific Northwest National Laboratories for the code determination studies, this requirement saved up to 0.5% (based on climate zone) whole building energy over the 2015 IECC. Since both 2018 and 2015 lack exterior lighting requirements, this is a reasonable approximation of savings.

Cost Impact: The code change proposal will increase the cost of construction
This will increase the cost of construction. However, the proposal refers only R-occupancies to the existing commercial exterior lighting requirements, which already cover smaller commercial buildings.

For example, a base light fixture cost for a 70 W halogen fixture is $118 .00 (https://www.lightingsupply.com/stonco-sla71mal-6) and the cost for an enhanced 80 W LED light fixture that will meet the proposed efficacy requirements is $158.33 (https://www.lightingsupply.com/best-lighting-products-ledmpal80-t-5k)