

## C-7: Faster shut off for occupancy sensors (C405.2.1.1)

*Summary:* There is currently inconsistency about how quickly occupancy sensors should turn off lights. This proposal reduces shut-off delay times from 30 to 20 minutes. A shorter shut-off delay time will result in more time off for lighting with no additional cost.

*Stakeholder Feedback:* There were no public comments received for proposal C-7.

No changes were made to proposal C-7.

=== IECC PROPOSAL:

*Modify section C405.2.1.1 as follows:*

**C405.2.1.1 Occupant sensor control function.** Occupant sensor controls in spaces other than warehouses specified in Section C405.2.1 shall comply with the following:

1. Automatically turn off lights within ~~30~~ 20 minutes of all occupants leaving the space.
2. Be manual on or controlled to automatically turn the lighting on to not more than 50 percent power.

**Exception:** Full automatic-on controls shall be permitted to control lighting in public corridors, stairways, restrooms, primary building entrance areas and lobbies, and areas where manual-on operation would endanger the safety or security of the room or building occupants.

3. Shall incorporate a *manual control* to allow occupants to turn lights off.

**Reason:** Reducing the shutoff time for occupancy sensors will result in lights turning off sooner after occupants leave a room and increase savings. There has been enough experience with occupancy sensor selection and placement in the design community so that acceptable performance can be achieved with a 20 minute maximum timeout setting.

*Energy Savings:* A field study of the energy impact of occupancy sensor settings<sup>1</sup> shows a significant difference in savings for 20 minute vs. 5 minute shutoff settings. The range is 6% to 13% difference, depending on space type. It is expected that about half that difference in savings would result from a 30 to 20 minute setting change, or about 5% of total baseline lighting energy use. For a typical installation in Climate Zone 8, where the heating penalty for lighting savings is greatest, the shift in time-off setting from 30 to 20 minutes can result in annual increased savings of around \$15 to \$20 per thousand square feet of occupancy sensor controlled area.

The U.S. Department of Energy (DOE) develops its proposals through a public process to ensure transparency, objectivity and consistency in DOE-proposed code changes. Energy savings and cost impacts are assessed based on established methods and reported for each proposal, as applicable. More information on the process utilized to develop the DOE proposals for the 2018 IECC can be found at:

<https://www.energycodes.gov/development/2018IECC>.

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<sup>1</sup> Lighting Controls Council. "Demand Reduction and Energy Savings Using Occupancy Sensors." National Electric Manufacturers Association (NEMA), April 2006. <https://www.nema.org/Standards/Pages/Demand-Reduction-and-Energy-Savings-Using-Occupancy-Sensors.aspx>.

**Cost Impact:** There is no added cost, as this simply requires changing a simple setting on the occupancy sensor during installation.

*Cost-effectiveness:* This change is cost-effective in that it provides significant savings with no anticipated cost increase.