**CED1-84-22**

**Proponents: Michael Jouaneh, representing Lutron Electronics Co., Inc. (mjouaneh@lutron.com)**

**2024 International Energy Conservation Code [CE Project]**

**Revise as follows:**

C408.3 Functional testing of lighting and receptacle controls. Automatic lighting and receptacle controls required by this code shall comply with this section.

**C408.3.1 Functional testing.** Prior to passing final inspection, the *registered design professional* or *approved agency* shall provide evidence that the lighting and receptacle control systems have been tested to ensure that control hardware and software are calibrated, adjusted, programmed and in proper working condition in accordance with the *construction documents* and manufacturer’s instructions. Functional testing shall be in accordance with Sections C408.3.1.1 through C408.3.1.3 for the applicable control type.

**C408.3.1.1 Occupant sensor controls.** Where *occupant sensor controls* are provided, the following procedures shall be performed:

1. Certify that the *occupant sensor* has been located and aimed in accordance with manufacturer recommendations.
2. For projects with seven or fewer *occupant sensors*, each sensor shall be tested.
3. For projects with more than seven *occupant sensors,* testing shall be done for each unique combination of sensor type and space geometry. Where multiples of each unique combination of sensor type and space geometry are provided, not less than 10 percent and in no case fewer than one, of each combination shall be tested unless the *code official* or design professional requires a higher percentage to be tested. Where 30 percent or more of the tested controls fail, all remaining identical combinations shall be tested.

For *occupant sensor controls* to be tested, verify the following:

* 1. Where *occupant sensor controls* include status indicators, verify correct operation.
	2. The controlled lights and receptacles controlled by *occupant sensor controls* turn off or down to the permitted level within the required time upon vacancy of the space.
	3. For auto-on *occupant sensor controls*, the controlled lights and receptacles controlled by *occupant sensor controls* turn on when an occupant enters the space.
	4. For manual-on *occupant sensor controls*, the controlled lights and receptacles controlled by *occupant sensor controls* turn on only when manually activated.
	5. The lights are not incorrectly turned on by movement in adjacent areas or by HVAC operation.

**C408.3.1.2 Time-switch controls**. Where *time-switch controls* are provided, ~~the following procedures~~ items 1 through 5 shall be performed for all *time-switch controls*. For projects with more than seven spaces where lighting or receptacles are controlled by *time-switch controls*, not less than 10 percent of spaces and in no case fewer than one, shall be tested according to items 6 and 7 unless the code official or design professional requires a higher percentage to be tested. Where 30 percent or more of the tested spaces fail any of the requirements in items 6 and 7, all remaining spaces shall be tested.

1. Confirm that the *time-switch control* is programmed with accurate weekday, weekend and holiday schedules.
2. Provide documentation to the owner of *time-switch controls* programming including weekday, weekend, holiday schedules, and set-up and preference program settings.
3. Verify the correct time and date in the time switch.
4. Verify that any battery back-up is installed and energized.
5. Verify that the override time limit is set to not more than 2 hours.
6. Simulate occupied condition. Verify and document the following:
	1. All lights can be turned on and off by their respective area control switch.
	2. The switch only operates lighting in the enclosed space in which the switch is located.
	3. Receptacles in the space controlled by the *time-switch controls* turn on.
7. Simulate unoccupied condition. Verify and document the following:
	1. Nonexempt lighting turns off.

7.2. Manual override switch allows only the lights and receptacles controlled by the *time-switch controls* in the enclosed space where the override switch is located to turn on controlled lighting and receptacles for no more than 2 hours ~~or remain on~~ ~~until the next scheduled shutoff occurs.~~

7.3 ~~Controlled r~~Receptacles controlled by the *time-switch controls* turn off.

~~8. Additional testing as specified by the~~ *~~registered design professional.~~*