

GEW56-14

604.1, 604.4

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Revise as follows:

604.1 Establishing an open and interoperable automated demand-response (Auto-DR) infrastructure. Where this section is indicated to be applicable in Table 302.1, buildings that contain heating, ventilating, air-conditioning (HVAC) or lighting systems shall comply with Sections 604.1 through 604.4. A building energy management and control system (EMCS) shall be provided and integrated with building HVAC systems controls and lighting systems controls to receive an open and interoperable automated demand-response (Auto-DR) relay or Internet signal. Building HVAC and lighting systems and specific building energy-using components shall incorporate preprogrammed demand response strategies that are automated with a demand response automation Internet software client.

Exception: Auto-DR infrastructure is not required for the following:

1. Buildings located where the electric utility or regional Independent System Operator (ISO) or Regional Transmission Operator (RTO) does not offer a demand response program to buildings regulated by this code.
2. Buildings with a peak electric demand not greater than ~~0.75~~ 0.80 times that of the standard reference design.
3. Buildings that have incorporated onsite renewable energy generation designed to provide 20 percent or more of the building's peak energy demand during the period of the day when the building reaches its peak demand.

604.4 Lighting. In Group B office spaces, the Auto-DR system shall be capable of reducing total connected power of lighting as determined in accordance with Section C405.5 of the *International Energy Conservation Code* by not less than ~~45~~50 percent.

Exception: The following buildings and lighting systems need not be addressed by the Auto-DR system:

1. Buildings or portions associated with lifeline services.
2. Luminaires on emergency circuits.
3. Luminaires located in emergency and life safety areas of a building.
4. Lighting in buildings that are less than 5,000 square feet (465 m²) in total area.
5. Luminaires located within a daylight zone that are dimmable and connected to automatic *daylight controls* complying with Section C405.2.2.3.2 of the *International Energy Conservation Code*.
6. Signage used for emergency, life safety or traffic control purposes.

Reason: The revised values shown in the proposed changes are designed to account for the changes that have occurred in cooling system and lighting system efficiency over the past few years.

1) For cooling systems, the efficiency of nearly all types of electric commercial cooling equipment was increased with the publication of ASHRAE 90.1-2013 and the latest version of the IECC. For equipment where the minimum efficiency was not raised at publication, the efficiency levels will be increased as of 1/1/2015 or 1/1/2016. For other types of cooling equipment that may be used, such as residential-sized central air conditioners, central heat pumps, and room air conditioners, efficiency levels will increase as of June 2014 (room air conditioners) or January 2015 (central air conditioners and heat pumps).

The percentage required has been lowered to account for the mandated efficiency increases, since they will reduce peak demand for nearly all commercial buildings.

2) In terms of renewable energy systems, suppose a building has a peak demand of 100 kW, and the renewable energy system provides 20 kW at night, and 0 kW during the day. In terms of peak demand, the renewable system is not providing any value. The proposed language provides the exception to systems that are providing energy when the energy production is coincident with the building's peak demand.

3) For lighting systems, the efficiency of the most common types of lighting equipment has increased or will be increased within the next year. The efficiency levels of general service fluorescent lamps, fluorescent lamp ballasts, general service incandescent lamps, incandescent reflector lamps, and metal halide lamp fixtures have increased significantly over the past few years, or will be increased within the next few years.

In addition, in the ASHRAE 90.1-2013 lighting section, the maximum lighting power density for office buildings under the Building Area Method has been reduced from 0.90 Watts/ft² (in the 2010 version of ASHRAE 90.1) to 0.82 Watts/ft², which corresponds to a 8.9% reduction.

The percentage required for lighting has been lowered to account for the mandated efficiency increases, since they will reduce peak demand for nearly all commercial buildings.

Cost Impact: Will not increase the cost of construction.

Analysis: The International Energy Conservation Code sections C405.5 and C405.2.2.3.2 referenced in the text of this proposal are section numbers for the 2012 Edition. Due to significant changes approved for the 2015 IECC, the section numbers for the 2015 Editions will be C405.4 and C405.2.3, respectively.

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