The potential for savings...

"...lighting measures usually exceed all other types of building improvements, showing rapid (often less than one year) payback and impressive life-cycle cost savings..."

-2009 International Energy Conservation Code Commentary, June 2010

Lighting is expensive, particularly in areas where utilities assess peak demand charges for afternoon electricity use. For example, the cost of lighting a 10,000-square-foot (929 m2) office building with connected lighting power of 20,000 watts (2 W/ft2) ranges from $4,600 to more than $8,300 per year; not including air-conditioning and environmental costs. When incremental consisting is used to assess equipment options in new buildings, lighting measures usually exceed all other types of building improvements, showing rapid (often less than one year) payback and impressive life-cycle cost savings (the above calculations were based on 10 or 18 hours of usage for 260 days per year and a cost of energy rate of $0.0891/kWh).

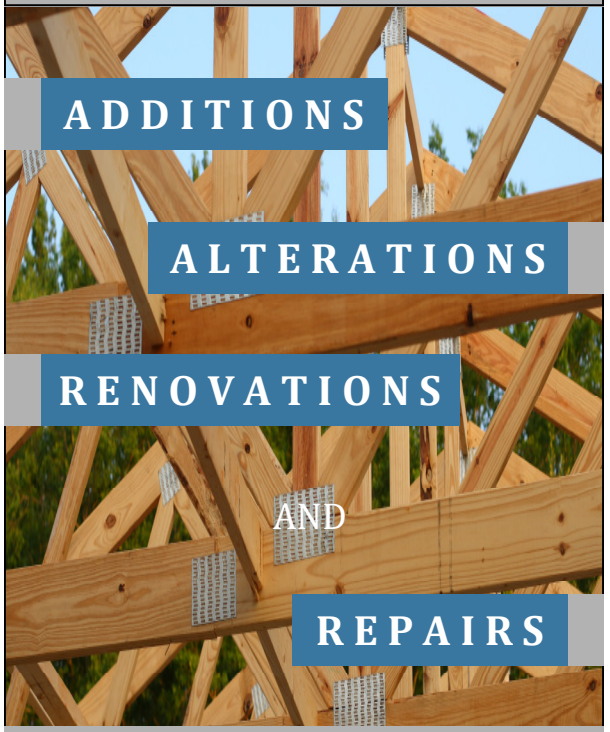
Electric lighting accounts for approximately 40 percent of all commercial building energy consumption in this country, accounting for about 5 percent of total energy consumption in the United States. Electric lighting also adds heat to building spaces that must be removed by the cooling system. As a rule of thumb, an air conditioner will use an additional 15 to 20 kW (51 193 to 68 257 Btu/h) to remove the heat produced by each 100 kW (341 287.4 Btu/h) of installed lighting energy.

The cost of lighting may be loosely defined as:

Lighting Cost = Lighting Power (kW) x Time of Use (hr) x Average Cost of Electricity ($/kWh)

*All excerpts taken from the 2009 IECC Commentary, June 2010

The
District of Columbia Energy Conservation Code
as applied to:



COMMERCIAL LIGHTING

DEPARTMENT OF CONSUMER & REGULATORY AFFAIRS

Phone: 202-442-4400

Web: www.dcra.dc.gov

Definitions

Alteration is any construction or **renovation** to an existing structure, other than repair or addition, that requires a permit. Also a change in a mechanical system that involves an extension, addition or change to the arrangement, type ,or purpose of the original installation and that requires a permit.

Repair is the reconstruction or renewal of any part of an existing building.

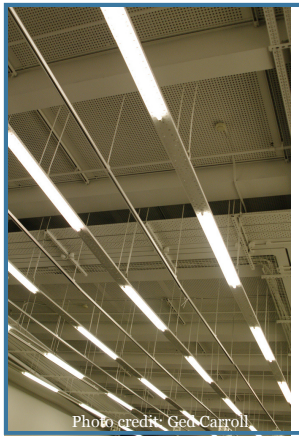
Addition is the extension or increase in the conditioned space, floor area, or height of a building or structure.

Commercial Building in the IECC is any building not considered a "Residential Building". (All buildings, except: R-2, R-3 and R-4, three stories or less in height above grade.)

General Lighting lighting that provides a substantial uniform level of illumination throughout an area. General lighting shall not include decorative lighting or lighting that provides a dissimilar level of illumination to serve a specialized application or feature within such area.

Requirements

Alterations/repairs that replace only the bulb and ballast within the existing luminaires in a space are exempt provided the alteration does not increase the installed interior lighting power.



Alterations that replace less than 50% of the luminaires in a space are exempt from the IECC lighting and power requirements provided such alterations do not increase the installed interior lighting power. [1]

Where the use in a space changes from one use to another in the "Interior Lighting Power Allowances" tables, the installed lighting power shall comply with the IECC "Interior Lighting Power Requirements" section for the new use.

All portions of an addition shall comply with the IECC without requiring unaltered portions of the existing building's lighting system to comply. An addition shall be deemed to comply with the IECC if the addition alone complies or if the existing building and addition comply with the IECC as a single building.

Note: Historic buildings are exempt from the requirements of the IECC.

[1]IECC is the International Energy Conservation Code and is published by the International Code Council (ICC). For more information about the IECC or to purchase a copy, visit www.iccsafe.org.

*This brochure is NOT an ICC publication, but has been reviewed by ICC technical staff for accuracy. Specific code requirements and the interpretation thereof are the sole authority of DCRA.

Specific questions regarding your project should be directed to your local code official. Questions about this brochure can be directed to Ryan Meres: ryan@imt.org