DOCKETED

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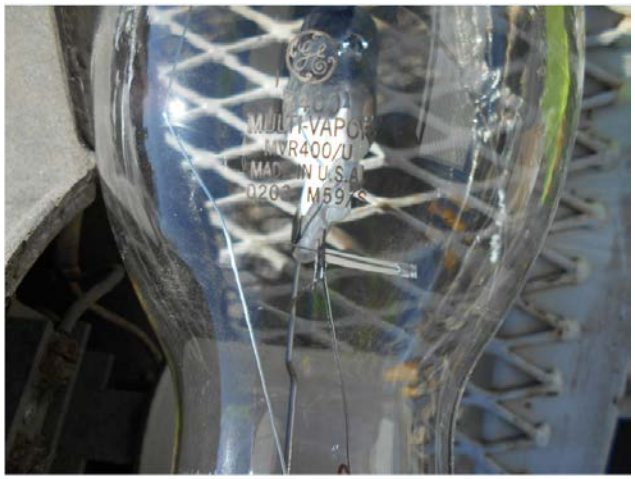
Examples of Lighting Alteration Project Types

INDOOR LIGHTING ALTERATIONS

1. A Warehouse Lighting Alteration
   - ❖ Job scope includes replacement of a total of 223 existing lighting fixtures.
   - ❖ Existing HID fixtures are replaced by LED fixtures; it is a one for one replacement.



A lamp taken from an existing luminaire
Source: EcologyAction

Label of an existing luminaire
Source: EcologyAction

Picture of one of the new LED luminaire
Source: EcologyAction

Lighting power reduction of this alteration exceeds 50%. (Details are as follows.)

new LED fixture wattage	old MH fixture wattage	Lighting Power Saving (in percentage) = 1 - (new fixture wattage / old fixture wattage)
104	458	77%

Code requirements for Lighting Controls:

(Since there are more than 50% of lighting power reduction, multi-level lighting controls, automatic daylighting controls and DR controls are NOT required.)

- Area on-off controls and automatic shutoff controls are required per Section 141.0(b)2Iii.

2. A Business Office Lighting Alteration

- Scope is to replace existing light sources and ballasts with new lamps and ballasts. Also to add emergency ballasts in some of the luminaires. Project areas include conference rooms, open offices, a lobby, a kitchen, a warehouse area and a mechanical room.
- Description of existing lighting system:

  There are existing bi-level switching in place already and they are to be reused as much as possible. In other locations, half-light switching together with step dimming ballasts are installed to provide bi-level switching functionality. (Half-light switching: Flip it once to turn on lights to provide a lower light level. Flip it again to turn on all lights to provide a higher light level. Flip the switch one more time to turn off all lights. This switching cycle repeats.)

An office space

Lighting power reduction of this alteration exceeds 50%. (Details are as follows.)

Fixture Location	**new T8 fixture wattage**	**old T12 fixture wattage**	**Lighting Power Saving (in percentage) = 1 - (new fixture wattage / old fixture wattage)**
Conference Rm	47	112	58%
Open Office 1	47	112	58%
Open Office 2	47	168	72%
Kitchen	47	112	58%
Conference Rm 2 & 3	47	112	58%
Warehouse	162	458	65%
Mechanical Room	47	112	58%

Lighting Control Schedule		
A	B	C
Location in Building	Type/ Description of Lighting Control (i.e.: occupancy sensor, automatic time switch, dimmer, automatic daylight, etc...)	# of Units
Ste 130 Open Office Areas	Occupancy Sensor/Bilevel Dimming	26
Conference 1	Occupancy Sensor/Bilevel Dimming	1
Conference 2	Occupancy Sensor/Bilevel Dimming	1
Conference 3	Occupancy Sensor/Bilevel Dimming	1
Mechanical Room	Occupancy Sensor/Bilevel Dimming	1
Lobby	Occupancy Sensor/Bilevel Dimming	1
Kitchen	Occupancy sensor/Bilevel Dimming	1
Warehouse	Occupancy Sensor	15

Luminaire Schedule (partial)

Source: EcologyAction

OUTDOOR LIGHTING ALTERATIONS

3. A Parking Lot Lighting Alteration

- The entire lot is being replaced with new luminaires. Scope is to replace all existing HID luminaire heads with LED luminaire heads. A total of forty six (46) heads are being replaced.

Metal halide lamps taken from existing luminaires
Source: EcologyAction

A parking lot

Code Requirements for lighting controls:

(Since there are more than 5 luminaires or more than half of the parking lot luminaires are being replaced, the alterations must meet the following sections.)

- Section 140.7 general hardscape lighting. EXCEPTION: Since the replacement luminaire wattage is more than 40% below existing luminaire wattage, outdoor lighting power allowance (LPA) requirement of 140.7 is exempted. (See Exception to Section 141.0(b)2Liii)

Lighting power reduction of this alteration exceeds 40%. (Details are as follows.)

new LED fixture wattage	old MH fixture wattage	Lighting Power Saving (in percentage) = 1 - (new fixture wattage / old fixture wattage)
72	290	75%
158	458	66%
275	1080	75%

☐ Section 130.2(c)1 (a photocontrol or outdoor astronomical time clock switch, or other control capable of automatically shutting OFF the outdoor lighting when daylight is available.)
and either 130.2(c)2 (automatic scheduling control) or the replacement luminaires be controlled by a lighting control system that automatically reduces lighting power by at least 40 percent in response to the area being vacant.