

## **Title-24 – 2013 – A Dramatic Shift in Energy Code Lighting / Power for Non-Residential Buildings**

The Energy Code is making a dramatic shift that will both make spaces of all types more energy efficient, and force the design community to design spaces differently than in the past. All projects that are submitted for plancheck after January 1, 2014 will be subject to the new code.

### **Why?**

California continues to be at the leading edge of energy efficiency in the United States and has been successful in curtailing energy use per person to the same level as the late 70's while the average usage of the rest of the US has doubled.

### **Changes Included:**

#### **Allowed power density of lighting for office uses have been reduced:**

Office > 250sqft – 0.75w/sqft (was 0.9)

Office < 250sqft – 1.0w/sqft (was 1.1)

**Path to compliance:** Further use of LED fixtures and other high efficacy source types.

### **CX Required**

An additional section to Title-24, on the tale of CAL Green, requires independent 3<sup>rd</sup> party commissioning of nonresidential buildings over 10,000 sqft and at least a design review for buildings under the area threshold. Similar to LEED an OPR and BOD are required with full functional acceptance testing of HVAC, indoor lighting systems, water heating, renewable energy, landscape and water reuse

Acceptance testing has been part of the current 2008 T-24 but has been unequally enforced across each jurisdiction. That might change and full compliance of provided forms as part of the Cx process. It remains to be seen how each jurisdiction enforces this new requirement.

**Path to compliance:** Include Commissioning agents as part of the building design process with time planned in the schedule for full acceptance testing/commissioning of building systems.

### **Dimming**

All spaces with more than one 2 lamp fixture, more than 100sft or greater than 0.5w/sqft must have dimming (continuous or step depending on type of lamp) control.

**Path to compliance:** Incorporate dimming in fixture specifications with an emphasis on dimming ballasts that have low voltage dimming interfaces capable of accepting daylight control and occupancy control interfaces.

### **Partial ON/OFF controls**

Stairwells, Corridors, Warehouse and Library Stacks must have occupancy sensors to turn of 50% of the lighting when unoccupied.

**Path to compliance:** Expansion of building controls with local occupancy sensor and override when needed for emergency use.

### **Daylight Auto Control**

Automatic daylight control is required in primary and secondary side-lit areas

**Path to compliance:** Provided daylight sensors in all primary and side-lit areas with a digital link to the dimming ballasts in the zones to automatically control the lights.

### **Demand Responsive**

Buildings over 10,000 square feet must have the ability to reduce lighting power by 15% based on signal from the electric utility

**Path to compliance:** Incorporate a trigger accepting point near the main service capable of turning off lights in non critical areas, or all lights in daylight areas or a mixture of them all. It forces a central system and away from discrete controllers localized for each space. A global communication of the lighting control will be needed.

### **Metering**

Electrical energy metering is required for all new buildings or spaces that use more than 50kVA. For large buildings the metering and distribution must be broken down by separated by use (lighting, HVAC, receptacles, water heating, escalators, kitchens etc...) floor, area and tenant if applicable.

**Path to compliance:** New buildings will need to have separate distribution and branch circuit panels to segregate the different uses in the building. At the floor level this will likely increase the size of electrical room to house the panels and meters.

### **Controlled Receptacles**

120V receptacles in offices, reception, conference rooms, kitchens and copy rooms shall have controlled receptacles. Controlled receptacles shall automatically turn off with the lights. You are allowed uncontrolled receptacles but a controlled receptacle distinctly labeled shall be located within 6-feet of each uncontrolled receptacle. Care will now be needed to clarify at programming, furniture coordination and layout to designate the controlled and uncontrolled receptacles clearly.

**Path to compliance:** Localized relay controls dedicated to each room or open office space capable of controlling each receptacle based on overall occupancy. Outlets in the furniture will need to be controlled and care will be needed to full coordinate the receptacle layout in the space with the intended use.

### **Alterations of Spaces**

Previously the threshold for lighting compliance was 50% fixtures moved over the scope of the project. That has been revised to 10%

**Path to compliance:** Plan design packages and budgets accordingly.

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