COMPLIANCE OVERVIEW

1. General and administrative changes
2. Permitting and certification
3. Compliance and enforcement
4. Compliance approaches
5. Required forms
LED LAMPS AND LUMINAIRES

- Distinctions between screw-base “replacement” lamps and others
- New designated rating requirements for LED luminaires and light engines
Mandatory Device Requirements

Majority of lighting control device requirements are now regulated by California Appliance Efficiency Standards, Title 20

- Devices must be certified to the California Energy Commission
- Expanded requirements for:
  - Automatic time switch controls
  - Dimmers
  - Occupant sensing devices
  - Photocontrols
**MAJOR UPDATE: TITLE 24 TRIGGERS**

More alterations will be required to meet new-construction standards for both lighting power density (LPD) and mandatory controls.

**Interior:** Upgrades that affect more than 10% of the lighting in a space, with a minimum of 40 luminaires, must comply with the new standards.

**Exterior:**
- Upgrades that replace more than 10% of the luminaires but less than 50% must meet all mandatory controls requirements, but do not need to meet the new Lighting Power Density requirements.
- Alterations that replace more than 50% of the luminaires in a space, or any alteration that increases the connected lighting load, must comply with all mandatory requirements and lighting power density allowances.
A certificate of compliance must be signed by the person in charge of the building design in order to receive T-24 certification.

Persons who prepare the Certificate of Compliance must sign a declaration statement on the documents they prepare to certify the information is accurate and complete.

All certificates of compliance and installation must conform to a format and information order and content approved by the California Energy Commission.

Note that enforcement agencies will inspect both newly constructed buildings and alterations to existing buildings.
Primary responsibility for compliance and enforcement rests with the local enforcement agency, typically associated with a city or county government.

**A building permit must be obtained from the local jurisdiction before construction of:**

- A nonresidential building
- An outdoor lighting system
- Additions to existing buildings
- Significant alterations to existing lighting systems
- Signage
ADOPTED REACH CODES (2008)

State law establishes a process that allows local adoption of building energy standards that are more stringent than statewide standards, sometimes called "reach codes." **Reach codes were adopted in the following regions (as of March 2013):**

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http://www.energy.ca.gov/title24/2008standards/ordinances/
EXPANDED ACCEPTANCE TEST REQUIREMENTS

• Lighting controls acceptance test technicians must be certified
• Acceptance tests expanded to include
  • Automatic daylighting controls
  • Shut-off controls (indoor and outdoor)
  • Demand response controls
THE CORE COMPLIANCE PROCESS

1. **Meet all mandatory requirements**
   The mandatory requirements set forth required controls that must be installed and the functionality that a lighting system must be capable of. The mandatory requirements will also specify if a device needs to be certified by the Energy Commission.

2. **Meet all prescriptive or performance requirements**
   These requirements set a maximum lighting power allowance a building or an area within a building. A building or area complies with these requirements if the *actual* lighting power used in the space is less than the *allowed* lighting power.
THE PERFORMANCE APPROACH

Performance Approach:

• More flexible than prescriptive
• Based on an energy simulation model of the building
• Requires an approved computer software program
• Uses energy budgets to determine compliance
• Typically used for flexibility and ability to find the most cost-effective solution

Approved software:
Perform 2008 (Public Domain)
EnergyPro 5.1
MICROPAS 8.1

Prescriptive Approach:

- Simpler of the two methods
- Each component of proposed building must meet prescribed minimum efficiency
- Less design flexibility
- Failure to meet any requirement results in non-compliance
THE PRESCRIPTIVE APPROACH

Indoor Lighting

The prescriptive lighting power requirements are determined by one of three methods:

- Complete building method
- Area category method
- Tailored method

The allowed lighting varies according to building occupancy and task.
THE PRESCRIPTIVE METHODS

1. Complete building method
   Applicable when the entire building’s lighting system is designed and permitted at one time, and when at least 90% of the building is one primary type of use. Some cases, the complete building method may be used for an entire tenant space in a multi-tenant building. A Single allowed lighting power value governs the entire building.

2. Area category method
   Applicable for any permit situation, including tenant improvements. Lighting power values are assigned to each major function areas of a building (offices, lobbies, etc.). The allowed lighting power is the weighted average of these areas.

3. Tailored method
   Applicable when additional flexibility is needed to accommodate special task lighting needs in specific task areas. Lighting power allowances are determined room-by-room and task-by-task, with the area category method used for other areas in the building.

NOTE:
The Complete Building Method cannot be used for retail spaces.
REQUIRED INTERIOR FORMS

1. NRCC-LTI-01-E Indoor Lighting
2. NRCC-LTI-02-E Indoor Lighting Controls
3. NRCC-LTI-03-E Indoor Lighting Power Allowance
4. NRCC-LTI-04-E Tailored Method Worksheets
5. NRCC-LTI-05-E Line Voltage Track Lighting Worksheet
6. NRCI-LTI-01-E All Buildings
7. NRCI-LTI-02-E Lighting Controls
8. NRCI-LTI-04-E Two interlocked systems
9. NRCI-LTI-05-E Power Adjustment Factor
10. NRCI-LTI-06-E Video conferencing studio
REQUIRED EXTERIOR FORMS

1. NRCC-LTO-01-E Outdoor Lighting
2. NRCC-LTO-02-E Outdoor Lighting Controls
3. NRCC-LTO-03-E Outdoor Lighting Power Allowances
4. NRCI-LTO-01-E Outdoor Lighting Certificate of Installation
5. NRCI-LTO-02-E EMCS or Lighting Control System
BREAK

5 minute stretch