

California Title 24 2005 Lighting Standard

Impacts on Lighting Design The Biggest Change in Years

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BENYA LIGHTING DESIGN

No Handouts!

- This presentation can be downloaded from www.benyalighting.com
- All of the Title 24 Materials are available for FREE DOWNLOAD at www.energy.ca.gov

NOTE TO READERS – PLEASE GET A COPY OF THE STANDARD AND FOLLOW ALONG.

Title 24 History

- 1978 **First generation Standard**
- » Watts per SF tables based on IESNA Table
- 1985 **Second generation Standard**
- » Whole Building Method
 - » Tailored Method (w/sf based on IESNA Illuminance Categories)
- 1992 **Updated Second Generation Standard**
- » Added the Area Category Method

Title 24 History

- 1998 Minor Updates and Changes
- 2001 Minor Updates and Changes
- 2005 Third Generation Standard
 - » Residential: significant increase in requirements for high efficacy lighting
 - » Commercial: substantially revised Tailored Method
 - » Commercial: added outdoor lighting and signs
 - » Commercial: dramatic reductions in allowed lighting power across the board

Where To Get T24

- Free
- Download from www.energy.ca.gov
- In PDF format
- You can get
 - The Manual
 - The Forms
 - The Standard

What is Title 24?

- **CALIFORNIA CODE OF REGULATIONS TITLE 24, PART 1 is the Administrative Regulations**
- **CALIFORNIA CODE OF REGULATIONS TITLE 24, PART 6 is the Efficiency Standards**

Administrative Rules

- Acceptance Documentation
 - §10-103
- Outdoor Lighting Zones
 - §10-114
- Applicability
 - §100
- Definitions
 - §101

Lighting Sections

All building types

- **SECTION 119 – MANDATORY REQUIREMENTS FOR LIGHTING CONTROL DEVICES**

Non-residential, high rise residential and hotel/motel occupancies

- **SECTION 130 – LIGHTING CONTROLS AND EQUIPMENT—GENERAL**
- **SECTION 131 – INDOOR LIGHTING CONTROLS THAT SHALL BE INSTALLED**

Lighting Sections

- **SECTION 132 – OUTDOOR LIGHTING**
- **SECTION 146 – PRESCRIPTIVE REQUIREMENTS FOR INDOOR LIGHTING**
- **SECTION 147 – REQUIREMENTS FOR OUTDOOR LIGHTING**

Low-rise residential buildings

- **SECTION 150 – MANDATORY FEATURES AND DEVICES**

Basic Approach to Title 24

(Section 140) Choose 1 of two methods

- (a) **Performance Approach** — to use no more TDV energy from depletable sources than the energy budget, calculated according to Section 141; or
- (b) **Prescriptive Approach** — in accordance with all the applicable requirements of Sections 142 through 146.

TDV?

TIME DEPENDENT VALUATION (TDV)

ENERGY is the time varying energy caused to be used by the building to provide space conditioning and water heating and for specified buildings lighting. TDV energy accounts for the energy used at the building site and consumed in producing and in delivering energy to a site, including, but not limited to, power generation, transmission and distribution losses.

Section 10-114

- Defines 4 Lighting Zones
- Adds administrative rules

Section 101 Definitions

- Many definition changes
- Revised definitions to some critical items
- Added definitions

SECTION 119 – MANDATORY REQUIREMENTS FOR LIGHTING CONTROL DEVICES

- Sets requirements for control devices such as motion sensors, time clocks and automatic daylight sensors
- Improved requirements in 2005 but no major changes

SECTION 130 – LIGHTING CONTROLS AND EQUIPMENT—GENERAL

- Specifies lighting in living quarters – makes hotel and motel and high rise residential the same as low rise residential
 - Exception for 10% of hotel rooms
- Sets watts to be used for track
- Changed in format but no serious overall impact

SECTION 131 – INDOOR LIGHTING CONTROLS THAT SHALL BE INSTALLED

- Requires multi-level lighting controls
- Requires automatic shut off controls
- Requires automatic daylighting controls
- Requires acceptance testing
- Significant new material

SECTION 132 – OUTDOOR LIGHTING

- Requires cut off and shielding
- Requires setback controls
- All new material

SECTION 146 – PRESCRIPTIVE REQUIREMENTS FOR INDOOR LIGHTING

- Three compliance paths
 - Whole building
 - Area Category
 - Tailored Method
- Changed values
- New Restrictions
- All new Tailored Method for Retail

SECTION 147 – REQUIREMENTS FOR OUTDOOR LIGHTING

- All new section
- Sets lighting power limits for outdoor lighting
- Uses a 4-lighting zone system
 - LZ1 Parks and preserves
 - LZ2 Rural and suburban
 - LZ3 Suburban and Urban
 - LZ4 Special High Lighting Needs

Section 148

- New section regulates signs

SECTION 150 – MANDATORY FEATURES AND DEVICES LOW RISE RESIDENTIAL

- Section (k)
- Requires fluorescent and compact fluorescent lighting in
 - Kitchens
 - Bathrooms
 - Garages
 - Utility Rooms
 - All other rooms
- Exceptions vary room to room

End

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