TITLE 24 COMPLIANCE

The California Lighting Technology Center's Nonresidential Lighting and Electrical Power Distribution Guide assists builders and lighting industry professionals in navigating the nonresidential lighting and electrical power distribution portions of California's Building Energy Efficiency Standards (Title 24, Part 6 or Energy Code). The 2019 iteration of the Energy Code took effect on January 1, 2020.

Significant changes in the 2019 Energy Code address ventilation, HVAC, demand response and lighting. Notably, the 2019 Energy Code now includes requirements for healthcare facilities (Occupancy Group I-2), although there are many exceptions for this building type. Major changes to the nonresidential lighting portion of the Energy Code include:

- Lighting Power Allowances
- Power Adjustment Factors
- Additions, Alterations & Repairs

Autani's innovative EnergyCenter energy management solution provides you with a comprehensive, budget-friendly means to meet Title 24 standards for lighting & HVAC control. Autani systems are already compliant with the lighting and HVAC control requirements in the 2019 revision of Title 24. In many cases, they surpass what is currently required.

WHY CHOOSE AUTANI'S ENERGYCENTER SYSTEM?

- Updated Title 24 standards create new requirements for projects. Implementing Autani's system now enables you to comply with those requirements to avoid additional costs and delays.
- New utility incentives are being created for systems that can meet or exceed the updated Title 24 requirements. Implementing Autani's EnergyCenter system simplifies the utility rebate process.
- Utilities cannot incent code compliance, only solutions that exceed code. Implementing the Autani system now captures today's utility incentives and positions you to receive future incentives.

Are you Title 24 Compliant?

To learn how Autani's innovative energy management products can help your facility become Title 24 compliant, email **sales@autani.com**, call **443.320.2233**, or visit our website **www.autani.com**.

NONRESIDENTIAL LIGHTING CONTROLS

Section 130.1 MANDATORY INDOOR LIGHTING CONTROLS Nonresidential, high-rise residential and hotel/motel buildings shall comply with the applicable requirements of Section 130.1 (a)-(f), in addition to the applicable requirements of Sections 110.9 and 130.0.

Section 130.1(a) Manual Area Controls	**Be readily accessible; and located in the same enclosed area with the lighting it controls; and provide separate control of general, floor/wall/window/case display, ornamental, and special effects lighting.**		
Exceptions	Public restrooms having two or more stalls, parking areas, stairwells, and corridors may use a manual control not accessible to unauthorized personnel.	In malls, auditoriums, retail/ showroom sales, comm/industrial storage areas, psychiatric and secure areas in healthcare facilities, and other areas where placement of a manual switch poses a health and safety hazard, the switch can be within sight of the lights being controlled or have a visual indicator.	In healthcare facilities, restrooms and bathing rooms intended for a single occupant, the lighting control may be located outside the enclosed area but directly adjacent to the door.
Section 130.1(b) Multi-level Controls	**Required if the general lighting of the enclosed area is 100 ft² or larger with a connected load > 0.5 watts per ft². The lighting would require multi-level controls that allow the level of lighting to be adjusted up or down. The multi-level control steps shall meet the uniformity requirements specified in TABLE 130.1-A.**		
Exceptions	Spaces with only one luminaire with no more than two lamps.	Classrooms < 0.7 Wft² with a control step between 30-70% power.	• Healthcare facilities • Restrooms
Section 130.1(c) Shut-OFF Controls	**All installed indoor lighting shall be controlled with occupant sensors, automatic time-switch control or other control capable of automatically shutting OFF all the lighting when unoccupied. Separate controls for general, display, ornamental, and each floor (other than stairwells) not exceeding 5,000 ft² and 20,000 ft² in malls, auditoriums, single tenant retails, and industrial.**		
Exceptions	• Continuous use 24/365 • Egress lighting, </= 0.1 Wft²	• Electrical equipment rooms • Healthcare facilities	• Emergency lighting which only operates when normal power is absent
Occupancy Sensors-Required	• Offices < 250 ft² • Multipurpose rooms > 1000 ft² • Restrooms	• Classrooms • Conference Rooms • 20 minute max timeout	• If multi-level control is required, must be partial on (50-70%) or manual on (Vacancy)
Occupancy Sensors-Full ON to Partial OFF >50% and Auto OFF	• Stairwells • Aisleways/open areas in warehouses	• 20 minute max timeout	• Library book stack aisles • Single entry > 10 ft • Multiple entry > 20 ft
Occupancy Sensors-Full ON to Partial OFF 20-50%	• Parking garages	• Residential high-rise stairwells and common area guest room corridors	
Automatic Time Switch	• May include manual on mode • Automatic holiday “shut-off”	• Required to have manual override • Maximum 2-hour after-hours override	• Malls, auditoriums, single tenant retail, industrial and captive key card areas may exceed 2-hour override requirement
Countdown Timer Switch	• 30 minutes off maximum	• Closets < 70 ft²	• Server aisles in server rooms

Section 130.1(d) Daylighting	**Automatically adjust the power of the installed lighting up and down as incoming daylighting changes. Daylighting controls shall provide separate control for luminaries in each type of daylit zone. Lighting in skylit zone and sidelit zone is considered skylit zone.**
Exceptions	• Glazing in room is < 24 ft^2 • Primary/skylight lighting < 120 W • Glazing with overhang above may be exempt • Sidelight zones in retail merchandise/wholesale showrooms
Daylighting Requirements	• Continuous dimming or Multi-level per 130.1(b) • Combined illuminance not less than designed illuminance • Indoor spaces, daylighting is > 150% of designed output, lighting shall be reduced by minimum of 65% • Parking structures, when daylighting is > 150% of designed output at the farthest end of the daylighting zone, lighting shall be zero
Section 130.5(d) Plug Load Control	**Plug load control required in office spaces/kitchens, lobbies, conference rooms, copy rooms and motel/ hotel guess rooms within 30 minutes of vacancy. Plug loads can be all split wire controlled or complete receptacles within 6 ft of each uncontrolled receptacle.**
Exceptions	• Healthcare exempt • Refrigerators/waster dispensers • Located > 6 ft above floor for clocks • Network copiers, fax, A/V and data equipment other than PC • Remodels required if complete replacement of electrical distribution system
Section 110.12 Demand Response	**Nonresidential buildings > 10,000 ft^2 shall be capable of automatically reducing lighting power, per Table 130.1-A, in response to a Demand Response Signal a minimum of 15% below total lighting power. Shall be Open ADR 2.0 a/b Virtual End Node (VEN) OR capable of responding to a certified Open ADR 2.0b VEN.**
Exceptions	• Health or life safety statute or regulation • Spaces < 0.5 W are not controlled and do not count toward 10,000 ft^2
Section 130.2 Outdoor Lighting Controls	**Shall be independently controlled from other electrical loads. Part night controls must have sunrise/ sunset prediction via photocell and time measurement and have the ability to reduce or turn off outdoor luminaires at night.**
	Daylighting controls • Photocell • Astronomical time-switch control • Other control capable of automatically shutting off the lights during daylight **Motion sensing controls** • Reduce lighting by 50-90% and off • Reduce lighting to dim/off > 15 minutes after vacancy • 1500 W maximum per sensor • Fixtures < 24 ft above grade and wall packs **Automatic scheduling controls** • Reduce lighting by 50-90% and off • Two nighttime periods • May have override < 2 hours • May be in conjunction with motion sensors
Exceptions	• Health or life safety statute or regulation – OFF may have a longer time out period or > 50% lighting level • < 40 W not required to have motion controls • Lighting in tunnels required for 24/365 operation
Section 130.4 (a-c) Acceptance Testing	**Nonresidential buildings other than healthcare facilities, high-rise residential buildings and hotel/motel buildings shall comply. Required testing to meet the requirements of Part 6 for Automatic Shutoff, Daylighting, Demand Response and Outdoor lighting controls prior to final occupancy permit. Healthcare facilities shall comply with the requirements of California's Office of Statewide Health Planning and Development (OSHPD).**

This guide was developed based upon published Building Energy Efficiency Standards for Nonresidential Buildings (CEC-400-2018-020-CMF), and Nonresidential Compliance Manual for Building Energy Efficiency Standards (CEC-400-2018-018-CMF) (collectively, "the code"); it is not intended to replace the code, nor be a source of expertise that interpret the code. This training material is based on CEC T24 code as it exists at the time of publication and may be updated without notice.

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