

2022 Title 24 Design Guide



Leviton Excellence for Title 24 Standards

2022 California Title 24 provides the minimum requirements for energy-efficient design of most commercial and residential buildings in the state of California. Title 24, Part 6 requirements define the minimum energy efficiency requirements for new construction, as well as new systems installed in existing buildings.

Leviton offers a wide spectrum of lighting and energy control solutions to bring any project up to standard. This reference guide provides examples of common applications, compliance considerations, and Leviton solutions to meet the functionality and standards compliance needs of the space.





California Title 24 2022 Design Guide

Code Comparison: IECC, ASHRAE 90.1 & Title 244
Title 24 Quick Reference
Product Solutions at a Glance14
Leviton Applications at a Glance
Small Office
Open Office
Classroom
Conference Room
Common Area
Warehouse
Energy Metering
Leviton Solutions
Leviton Value Add Design Services and Support42



SOURCE: Building Codes Assistance Project, www.energycodes.gov

Disclaimer:

This document is for informational purposes only. Each project will have its own specific requirements for satisfying Title 24 code compliance based on a variety of factors. Other exceptions or details may apply. Review the code for specific requirements and/or consult with a professional advisor. Leviton Mfg. Co., Inc. is not responsible for any loss resulting from the use of any information found in this document.

Solutions are subject to change without notice. For additional assistance, contact your local Leviton representative.

3

2022 Title 24 is an expansion of the national ASHRAE Standard 90.1 2010/2013/2016/2019, which is a more in-depth version of the national standard guidelines set forth in 2012/2015/2018/2021 IECC. See the table below for an overview of how the codes and standards compare.

Note that the new code additions (Title 24 2022, 2021 IECC and ASHRAE 90.1 2019) are highlighted.

Control Type	2022 Title 24, Part 6	2021 IECC	ASHRAE 90.1 2019
Automatic Receptacle Control	Required in: • Private offices • Open office spaces • Reception lobbies • Conference rooms • Kitchenettes • Copy rooms • Hotel/motel guest rooms	 Required in: Enclosed offices Conference rooms Printing/copy rooms Break rooms Classrooms Individual work stations including modular partitions and module office workstation systems Either split controlled receptacles shall be provided with the top receptacle controlled, or a controlled receptacle shall be located within 12" of each uncontrolled receptacle Control via occupancy sensor, time of day, or signal from another control or alarm system Receptacles to be identified and uniformly distributed 	Required in: Private offices Computer classrooms Break rooms Conference rooms Printing/copy rooms Classrooms Individual workstations 25% of branch circuit feeders installed for modular furniture Must be turned off via time-of- day control, or control system/ occupancy sensor after 20 minute of vacancy
Automatic Shutoff	 Occupant sensing controls are required for offices 250 sq ft or small and multi-purpose rooms less than 1,000 sq ft, classrooms, conference rooms and restrooms and must automatically shut OFF all lights in 20 minutes or less after the control zone is unoccupied In office spaces greater than 250 square feet, general lighting shall be controlled with occupant sensing controls. Lighting shall be controlled separately in zones < 600 sq. ft. Luminaires with embedded occupant sensor considered own zone. Partial-ON may only activate lights between 50-70% power Controls shall be provided that allow the lights to be manually shut OFF in accordance with Section 130.1(a) 	 Automatic time switches are required in most areas that are not controlled by an occupancy sensor; the switch must also have a manual override and allow for manual control in locations where occupants have ready access Occupancy sensors must auto-OFF within 20 minutes of occupants leaving the space, and manual-ON or auto-ON to 50% 	 Interior lighting must have an automatic control to turn the light OFF This device can be a scheduling control, an occupancy sensor, or a BAS/BMS system Control requirements are listed in table 9.6.1 and require spaces to be controlled in one or more of the following: Local Control Restricted to Manual On Restricted to partial on Bi-level lighting control Automatic Daylight control Automatic Full Off Scheduled Shutoff
	 Manual-ON/OFF override control is required in each area enclosed by ceiling-height partitions If lighting is dimmable, controls must be on a dimmer with dimming and manual-ON/OFF capabilities 	 Manual controls are required for all areas controlled by an occupancy sensor listed in 405.2.1 Areas not controlled via an 	 Local controls are required for spaces as indicated in table 9.6.1 These spaces can be restricted to manual on control and/or bi-level

- Manual Space Control
 - must be separately controlled Scene controllers may comply with . this requirement provided at least one scene turns ON general lighting only, and the control provides a means to manually turn lights OFF

• General/display/ornamental lighting

- Areas not controlled via an occupancy sensor must have light reduction controls to reduce lighting load by not less than 50% in a reasonably uniform pattern
- manual on control and/or bi-level lighting control
- Bi-level control requires continuous dimming or a controlled step between

4



2022 Title 24 is an expansion of the national ASHRAE Standard 90.1 2010/2013/2016/2019, which is a more in-depth version of the national standard guidelines set forth in 2012/2015/2018/2021 IECC. See the table below for an overview of how the codes and standards compare.

Note that the new code additions (Title 24 2022, 2021 IECC and ASHRAE 90.1 2019) are highlighted.

Control Type	2022 Title 24, Part 6	2021 IECC	ASHRAE 90.1 2019
Parking Garage Control	 Occupancy sensors must reduce power with one control step between 20-50% of lighting power No more than 500W of lighting may be controlled per zone Automatic controls must turn lights to full-ON and be activated from all paths of egress 	 Lighting required to be controlled via time switch or occupancy sensor In addition: Lighting power reduced by 30% when no activity for 20 minutes Covered vehicle entrances and exits reduced by 50% from sunset to sunrise Perimeter fixtures controlled in response to daylight to reduce by at least 50% 	 Shall have automatic shutoff Parking garage lighting zones must be controlled by a device that reduces power by 30% (50% in 2019) after 20 (10 mins in 2019) mins of vacancy Open exterior walls must utilize automatic daylight harvesting Covered vehicle entrances and exits must automatically reduce lighting by 50% from sunset to sunrise Perimeter fixtures must be controlled in response to daylight
Automatic Daylight Control	 General lighting in skylit, primary,and secondary daylit zones and combined primary and secondary daylit zones in parking garages shall be provided with controls that automatically adjust the power of the installed lighting up and down to keep the total light level stable Automatic daylighting controls shall provide separate control for general lighting in each of daylit zone Automatic daylighting shall: —Adjust lighting via continuous dimming or stepped dimming —Ensure that in areas other than parking garages, the daylight illuminance is greater than 150 percent of the illuminance provided and the controlled lighting power in that daylight zone shall be reduced by a minimum of 90 percent; —Ensure photosensors are not readily accessible to unauthorized personnel and the location where calibration adjustments are made be readily accessible to authorized personnel 	 Required for side primary side lit zones with 150W of lighting and secondary zones with 300W of lighting. Required for top lit zones with 150W of lighting. Dim continuously from full output to 15% or lower. Must be capable of full shutoff. Must still control lighting in areas where occupancy control has already reduced light output. Daylight harvesting occurs between zero and the occupancy sensor set point Calibration to be readily accessible 	 Required for side primary side lit zones with 150W of lighting and secondary zones with 300W of lighting. Required for top lit zones with 150W of lighting. Reduce lighting by dimming or providing steps between 50% and 70%, 20% and 40% of lighting power or lowest level, and off Calibration adjustment cannot require the physical presence of a person and be located no higher than 11' above finished floor
Multi-Level	• The general lighting of any enclosed area 100 sq ft or larger with a connected lighting load that exceeds 0.5 watts/sq ft shall	 Areas not controlled via an occupancy sensor must have 	 For areas requiring bi-level lighting control, the space shall

Multi-Level Area Lighting Controls

- enclosed area 100 sq ft or larger with a connected lighting load that exceeds 0.5 watts/sq ft shall provide multi-level lighting controls that adjust the lighting levels up and down and:
- Meet uniformity requirements specified in Table 130.1-A (page 13)

Areas not controlled via an occupancy sensor must have light reduction controls to reduce lighting load by not less than 50% in a reasonably uniform pattern For areas requiring bi-level lighting control, the space shall be controlled to provide at least one step in lighting power or continuous dimming between 30% and 70%

2022 Title 24 is an expansion of the national ASHRAE Standard 90.1 2010/2013/2016/2019, which is a more in-depth version of the national standard guidelines set forth in 2012/2015/2018/2021 IECC. See the table below for an overview of how the codes and standards compare.

Note that the new code additions (Title 24 2022, 2021 IECC and ASHRAE 90.1 2019) are highlighted.

Control Type	2022 Title 24, Part 6	2021 IECC	ASHRAE 90.1 2019
Exterior Lighting Control	 All outdoor lighting must be controlled with a photocontrol and an automatic time switch OR astronomical time switch control Automatic scheduling and motion sensing controls must be capable of reducing the outdoor lighting power by at least 50% percent and no more than 90%, and separately capable of turning the lighting OFF, during scheduled unoccupied periods Motion sensing controls are required to reduce outdoor lighting to its dim or OFF state no longer than 15 minutes after the area has been vacated, and of returning the lighting to its ON state when it becomes occupied Outdoor lighting must remain independently controlled via automatic scheduling of a minimum of two nighttime periods with independent lighting levels, and may include an override function that turns lighting ON during its scheduled dim or OFF state for no more than two hours 	 Turn lights off when sufficient daylight is available Facade and landscape lighting automatically turned off from 1 hour of business closing to 1 hour of business opening All other lighting to have power reduced by not less than 50% from either midnight to 6:00am, one hour of business closing to one hour of business opening, or when space is unoccupied for 15 minutes Lighting serving outdoor parking areas with a rated wattage greater than 78W and mounted at 24ft or less shal be controlled to automatically reduce the power of each fixture by 50% when no activity has been detected for 15 min. 	 Turn lights off when sufficient daylight is available Facade and landscape lighting to be turned off from either midnight to 6:00am, business closing to business opening, or times established by the authority having jurisdiction Advertising signage to have power reduced by not less than 50% from either midnight to 6:00am, 1 hour of business closing to 1 hour of business closing to 1 hour of business opening, or when space is unoccupied for 15 minutes Lighting serving outdoor parking areas with a rated wattage greater than 78W and mounted at 24ft or less shall be controlled to automatically reduce the power of each fixture by 50% when no activity has been detected for 15 minutes



 All lighting controls must be tested by a Certified Lighting Control Acceptance Test Technician (CLCATT)

when an override is initiated

- This can be done by the same electrical contractor that did the work if they are CLCATT
- All lighting controls must be tested by a party not involved with the design or construction team to ensure that the products are working properly
- The construction documents shall state the party who will conduct and certify the functional testing (Removed in 2019)
- The party responsible shall not directly be involved in either the design or construction of the project



2022 Title 24 is an expansion of the national ASHRAE Standard 90.1 2010/2013/2016/2019, which is a more in-depth version of the national standard guidelines set forth in 2012/2015/2018/2021 IECC. See the table below for an overview of how the codes and standards compare.

Note that the new code additions (Title 24 2022, 2021 IECC and ASHRAE 90.1 2019) are highlighted.

Control Type	2022 Title 24, Part 6	2021 IECC	ASHRAE 90.1 2019
Demand Response	 Nonresidential lighting systems subject to the requirements of Section 130.1(b) with a general lighting power of 4,000 watts or greater shall be capable of automatically reducing lighting power in response to a Demand Response Signal For compliance testing, the lighting controls shall demonstrate a 15 percent or greater reduction in lighting power reduction in controlled spaces of a minimum of 15 percent below the total installed lighting power as described in NA7.6.3 For buildings where demand response controls are required, demand responsive controls shall control general lighting that is subject to requirements of Section 130.1(b) and may control additional lighting General lighting shall be reduced in a manner consistent with the uniform level of illumination requirements in TABLE 130.1-A Controlled receptacles in buildings shall be capable of automatically turning off all loads connected to the receptacle in response to a demand response signal in buildings that require to have demand responsive lighting controls 		
Separation of Loads for Energy Monitoring Purposes	• Specifications for the separation of 10 types of electrical loads for switchboards, panels and motor control centers required to be disaggregated per Table 130.5-B	_	-
Service Metering	 Each electrical service or feeder shall have a permanently installed metering system which measures electrical energy use in accordance with TABLE 130.5-A EXCEPTION: Service or feeder for which utility company provides metering system that indicates instantaneous kW demand and kWh for a utility-defined period 	 New buildings with a gross conditioned floor area of 25,000 square feet or larger shall be equipped to measure, monitor, record and report energy consumption data in compliance with Sections C405.12.1 through C405.12.5 Electrical energy monitoring required for all electrical energy supplied to the building and its associated site Meters or other approved measurement devices shall be provided to collect energy use data for each end-use category indicated in Table C405.12.2 Meters or other measurement devices required by this section shall be configured to automatically constrained. 	 Measurement devices must be installed in new buildings to separately monitor energy usage for total electrical energy, HVAC systems, interior lighting, exterior lighting and receptacle circuits All data required above must be recorded a minimum of every 15 minutes and reported on hourly, daily, monthly, and annual intervals

communicate energy consumption data to the data acquisition system required by Section C405.12.4

2022 Title 24 Requirements Summary

Note that updates for 2022 Title 24 are highlighted.

Control Type	Summary	Quick Take	
130.5(d) Automatic Receptacle Control	 Circuit Controls for 120V receptacles: In all buildings, both controlled and uncontrolled 120V receptacles shall be provided in each private office, open office area, reception lobby, conference room, kitchenette in office spaces, and copy room. Controlled receptacles shall meet the following requirements, as applicable: Must include an auto-OFF control for the controlled receptacles when the space is typically unoccupied, including an override control to remain ON for no more than 2 hours and a holiday 24-hour shut-OFF control that may not be a countdown timer switch; and At least one controlled receptacle shall be installed within 6 feet from each uncontrolled receptacle or a split-wired duplex receptacle with one controlled and one uncontrolled receptacle shall be installed; and For open offices with modular furniture, at least one controlled receptacle shall be installed at each workstation; and Controlled receptacles shall have a permanent marking to differentiate them from uncontrolled receptacles; and For hotel and motel guest rooms at least one-half of the 120V receptacles in each guest room must be controlled receptacles. Electric circuits serving controlled receptacles shall have captive key controls, occupancy sensing controls, or automatic controls such that, no longer than 30 minutes after the guest room has been vacated, power is switched OFF Plug-in strips and other plug-in devices that incorporate 	In all buildings, controlled 120V receptacles must be provided in applicable areas and meet specific requirements. Leviton Product Solutions • Occupancy sensors • Receptacle control • Lumina RF Wireless • IRC • GreenMAX DRC • GreenMAX	
130.1(c) Shut-Off Controls	 In addition to lighting controls installed to comply with Sections 130.1(a) and (b), all installed indoor lighting shall be equipped with controls that meet the following requirements:* Shall be controlled with an occupant sensing control, automatic time switch control, or other control capable of automatically shutting OFF all of the lighting when the space is typically unoccupied Separate controls for the lighting on each floor, separate controls for a space enclosed by ceiling height partitions not exceeding 5,000 square feet, and separate control for general, display, ornamental, and display case lighting Automatic time switch controls may include a manual-ON mode Areas where occupancy sensing controls are required to automatically shut OFF all lighting include offices >250 sq ft, multipurpose rooms >1,000 sq ft, classrooms, conference rooms, and restrooms of any size within 20 minutes or less after the control zone is unoccupied. In areas required by Section 130.1(b) to have multi-level lighting controls, the occupancy sensing controls shall function as either a: Partial-ON occupant sensor capable of automatically activating to between 50-70% of controlled lighting power, OR Vacancy sensor (manual-ON only) In areas not requiring multi-level controls, occupancy sensing controls must function as either: Occupancy sensors Partial-ON 	Indoor lighting must be controlled by: occupancy sensor, automatic time switch, or a control capable of automatically shutting OFF all lighting when a space is unoccupied Areas where occupancy sensing controls are required to automatically shut OFF all lighting include offices >250 sq ft, multipurpose rooms >1,000 sq ft, classrooms, conference rooms, and restrooms of any size within 20 minutes or less after the control zone is unoccupied General lighting in office spaces greater than 250 square feet shall be controlled with occupant sensing controls	
	 Partial-UN Vacancy sensor (manual-ON only) All occupancy sensing controls must contain manual-OFF control capabilities. Partial -OFF occupancy sensing controls are required in addition to complying with Section 130.1(c)1 (full shut-off controls) in the following locations: Aisle ways and open areas in warehouses Library book stacks 10 feet or longer Corridors and stairwells General lighting in office spaces greater than 250 square feet shall be controlled with occupant sensing controls. Lighting shall be controlled separately in zones < 600 sq. ft. Luminaires with embedded occupant sensor considered their own zone Lighting providing means of egress illumination, as the term is used in the California Building Code, shall be configured to provide no less than the amount of light required by California Building Code Section 1008 while in the partial-off mode. 	 Leviton Product Solutions Occupancy sensors Vacancy sensors Smart wallbox sensors Wall box dimmers Receptacle controls Sapphire GreenMAX DRC Lumina RF Wireless Provolt Room Controller IRC GreenMAX 	

Please see the complete code text for a full list of exceptions and details.

- GreenMAX
 - TLLP



Control Type	Summary	Quick Take
130.1(a) Manual Area Controls	 Each area enclosed by ceiling-height partitions shall be independently controlled with controls that meet the following requirements:* Be readily accessible in most areas Areas that may use manual ON/OFF control not accessible to unauthorized personnel are: public restrooms having 2 or more stalls, parking areas, stairwells, corridors, and areas of the building intended for access or use by the public Be located in the same enclosed area with the lighting it controls; and Provide separate control for general, floor display, wall display, case display, ornamental and specific effects lighting, such as that each type of lighting can be turned ON or OFF without turning ON or OFF other types of lighting, and without turning ON or OFF any other equipment Scene controllers may be used if at least one scene turns on general lighting only and the control provides a means to manually turn off all lighting 	Area Controls contains 3 main points: (1) most indoor areas must have manual controls, (2) controls must be easily accessible and apply to the area in which they're located, (3) other lighting controls may be installed that do not interfere with manual control, Many exceptions apply to 130.1(a); refer to code for details. Leviton Product Solutions • Occupancy sensors • Vacancy sensors • Vacancy sensors • Smart wallbox sensors • Wall box dimmers • Receptacle controls • Intellect • Sapphire • GreenMAX DRC • Lumina RF Wireless • Provolt Room Controller

Ş

130.1(b) Multi-Level Controls

The general lighting of any enclosed area 100 square feet or larger, with a connected lighting load that exceeds 0.5 watts per square foot shall provide multi-level lighting controls that allow the level of lighting to be adjusted up and down and meet the following requirements:

• Multi-level controls shall provide the number of control steps and meet the uniformity requirements in accordance with Table 130.1-A

Exceptions: Any room with single 1- or 2- lamp or one inseparable Solid State Luminaire (SSL) and restrooms

In most indoor spaces, general lighting must be dimmed to steps between OFF and full- ON. Refer to Table 130.1-A for full details.

Leviton Product Solutions

- Occupancy sensors
- Vacancy sensors
- Smart wallbox sensors
- Wall box dimmers

GreenMAXTLLP

- Intellect
- Sapphire
- Lumina RF Wireless
- Provolt Room Controller
- IRC
- GreenMAX
- TLLP

2022 Title 24 Requirements Summary

Note that updates for 2022 Title 24 are highlighted.

Control Type	Summary	Quick Take
tighting	Outdoor lighting controls shall be installed that meet the following requirements as applicable:* Automatic scheduling controls shall be installed for all outdoor lighting and may be installed in combination with motion sensing controls or other outdoor lighting controls and shall be capable of reducing the outdoor lighting power by at least 50 percent and no more than 90 percent, and separately capable of turning the lighting OFF, during scheduled unoccupied periods. Automatic scheduling controls shall allow scheduling of a minimum of two nighttime periods with independent lighting levels, and may include an override function that turns lighting ON during its scheduled dim or OFF state for no more than two hours when an override is initiated. Motion sensing controls may be installed for other outdoor lighting and in combination with other outdoor lighting controls. See the complete code text for a full list of exceptions and details	Outdoor lighting must be controlled by a photocontrol and time switch device, or an astronomical time switch device that keeps lights OFF during daylight hours Facade, ornamental and outdoor dining lighting must be controlled by: • Outdoor lighting controls • Motion sensors • Centralized time-based controls • Wall pack controls Many exceptions apply to 130.2(c); refer to code for details. Leviton Product Solutions • Occupancy sensors • Photocells • GreenMAX
130.3(a) Sign Lighting Controls	 All sign lighting shall meet the following requirements:* Indoor Signs shall be controlled with an automatic time switch control or astronomical time switch control Outdoor Signs shall meet the following requirements as applicable: All outdoor sign lighting shall be controlled with a photocontrol in addition to an automatic time-switch control, or an astronomical time-switch control. All outdoor sign lighting that is ON both day and night shall be controlled with a dimmer that provides the ability to automatically reduce sign lighting power by a minimum of 65 percent during nightime hours. Signs that are illuminated at night and for more than 1 hour during daylight hours shall be considered ON both day and night. 	Indoor lighted signs must be controlled with a time-switch control. Leviton Product Solutions • Photocells • Intellect • Lumina RF Wireless • IRC • GreenMAX

All lighting controls must be tested by a party not involved with the design or construction team to ensure that the products are working properly.

130.4(b) Functional Testing

All lighting controls must be tested by a Certified Lighting Control Acceptance Test Technician (CLCATT)

This can be done by the same electrical contractor that did the work if they are CLCATT

All Leviton solutions are manufactured to the highest quality and performance standards, which can easily be demonstrated at the time of installation to fulfill California Title 24 2022 section 130.4(b)



Control Type	Summary	Quick Take
	Nonresidential lighting systems subject to the requirements of Section 130.1(b) with a general lighting power of 4,000 watts or greater shall be capable of automatically reducing lighting power in response to a Demand Response Signal.	
\vec{J}	For compliance testing, the lighting controls shall demonstrate a 15 percent or greater reduction in lighting power reduction in controlled spaces of a minimum of 15 percent below the total installed lighting power as described in NA7.6.3.	Nonresidential lighting systems subject to the requirements of
	For buildings where demand response controls are required, demand responsive controls shall control general lighting that is subject to requirements of Section 130.1(b) and may control additional lighting.	Section 130.1(b) with a general lighting power of 4,000 watts or greater shall be capable of automatically reducing lighting
110.129(a) Demand	General lighting shall be reduced in a manner consistent with the uniform level of illumination requirements in TABLE 130.1-A.	power in response to a Deman Response Signal.
Management Controls	Controlled receptacles in buildings shall be capable of automatically turning off all loads connected to the receptacle in response to a demand response signal in buildings that require to have demand responsive lighting controls.	Leviton Product SolutionsIntellectSapphire
	Demand responsive lighting controls shall be either:	Lumina RF WirelessProvolt Room Controller
	Certified OpenADR 2.0a or OpenADR 2.0b Virtual End Node (VEN), or	IRC CroopMAX
	 Be certified by the manufacturer as being capable of responding to demand response signal from a Certified OpenADR 2.0b VEN 	• GreenMAX
	All demand responsive controls shall be capable of communicating with the VEN using a wired or wireless bidirectional communication pathway.	
	When communications are disabled or unavailable, all demand responsive controls shall continue to perform all other control functions provided by the control.	
	Each lighting control installed to comply with Section 130.1 shall permit or incorporate the functions of the other lighting controls required by this Section.	
	 For general lighting, the manual area control shall permit the level or amount of light provided while the lighting is on to be set or adjusted by the controls specified in Section 130.1(b), (c), (d), and (e) 	This section outlines how each system should operate in orde
	• The manual area control shall permit the shutoff control to turn the lighting down or off	to ensure that all functions of
130.1(f) Control Interactions	 The multi-level lighting control shall permit the automatic daylighting control to adjust the electric lighting level in response to changes in the amount of daylight in the daylit zone The multi-level lighting control shall permit the demand responsive control to adjust the lighting during a demand response event and to return it to the level set by the multilevel control after the event 	the mandatory lighting contro are permitted or incorporated the system as a whole. Leviton Product Solutions
	• The shutoff control shall permit the manual area control to turn the lighting on. If the on request occurs while an automatic time switch control would turn the lighting off, then the on request shall be treated as an override request consistent with Section 130.1(c)	 Occupancy sensors Photocells Intellect Sapphire
	 The automatic daylighting control shall permit the multi-level lighting control to adjust the level of lighting 	GreenMAX DRCLumina RF Wireless
	• For lighting controlled by multi-level lighting controls and by occupant sensing controls that provide an automatic-on function, the controls shall provide a partial-on function that is capable of automatically activating between 50-70 percent of controlled lighting power	Provolt Room ControllerIRCGreenMAX
	For space conditioning system zones serving only spaces that are required to have occupant sensing controls as specified in Section 130.1(c), and where Table 120.1-A allows the ventilation air to be reduced to zero when the space is in occupied-standby mode, the space conditioning system shall be controlled by occupancy sensing controls as specified in Section 120.2(e)3.	
		Newly installed meters must
20 E(a) 9 130 E(b)	Each electrical service shall have permanently installed user-accessible metering of total electrical energy use per Table 130.5-A	be capable of measurement o electrical loads, which can be
30.5(a) & 130.5(b) Service Metering & Disaggregation of	Separation of electrical circuits for electrical energy monitoring. Electrical power distribution systems shall be designed so that measurement devices can monitor the electrical energy usage of load types	viewed downstream from the meter.
Electrical Circuits	according to Table 130.5-B.	• VerifEye [™] Submetering

Leviton Product SolutionsVerifEye™ Submetering

Table 130.1-A Multi-Level Lighting Controls & Uniformity

	0 0	
Luminaire Type	Minimum Required Control Steps (percent of full-rated power¹)	Uniform Level of Illuminance Shall Be Achieved By:
LED Luminaires and LED Light Source Systems		
Line Voltage Sockets Except GU-24	Continuous dimming 10-100-%	
Low Voltage Incandescent Systems		
Fluorescent luminaires	Continuous dimming 20-100%	
GU-24 Sockets Rated for Fluorescent > 20 Watts Pin-Based Compact Fluorescent > 20 Watts ²	Minimum one step between 30-70%	Stepped dimming or Continuous dimming; or Switching alternate lamps in a luminaire
Linear Fluorescent and U-Bent Fluorescent < 13 Watts		
Track Lighting	Minimum one step between 30-70%	Stepped dimming; or Continuous dimming; or Separately switching circuits in multi-circuit track with a minimum of two circuits
Linear Fluorescent and U-Bent Fluorescent > 13 Watts	Minimum one step in each range: 20-40%, 50-70%, 75-85%, 100%	Stepped dimming or Continuous dimming; or Switching alternate lamps in each luminaire, having a minimum of 4 lamps per luminaire, illuminating the same area and in the same manner
Other Light Sources including HID and Induction	Minimum one step between 50-70%	Stepped dimming or Continuous dimming; or Switching alternate lamps in each luminaire, having a minimum of 2 lamps per luminaire, illuminating the same area and in the same manner

 $^{1}\,\mbox{Full}$ rated input of power of driver, ballast, and lamp, corresponding to maximum ballast factor

 $^{\rm 2}$ Includes only PIN based lamps: twin tube, multi twin tube, and spiral lamps

Table 130.5-A Minimum Requirements for Metering of Electrical Load

Meter Rating (kVA)	50 kVA or Less	> 50 kVA & <or Equal to 250 kVA</or 	> 50 kVA & <or Equal to 1,000 kVA</or 	> 1,000 kVA
Instantaneous (at the time) kW demand	Required	Required	Required	Required
Historical peak demand (kW)	Not Required	Not Required	Required	Required
Tracking kWh for a user definable period	Required	Required	Required	Required
kWh per rate period	Not Required	Not Required	Not Required	Required



Table 130.5-B Minimum Requirements for Metering of Electrical Load

Meter Rating (kVA)	50 kVA or Less	> 50 kVA & <or Equal to 250 kVA</or 	> 50 kVA & <or Equal to 1,000 kVA</or 	> 1,000 kVA
Lighting Including Exit and Egress Lighting and Exterior Lighting	Not Required	All Lighting in Aggregate	All lighting disaggregated by floor, type or area	All lighting disaggregated by floor, type or area
HVAC Systems and Components including chillers, fans, heaters, furnaces, package units, cooling towers, and circulation pumps associated with HVAC	Not Required	All HVAC in Aggregate	All HVAC in aggregate and each HVAC load rated at least 50 kVA	All HVAC in aggregate and each HVAC load rated at least 50 kVA
Domestic and service water system pumps and related systems and components	Not Required	All Loads in Aggregate	All Loads in Aggregate	All Loads in Aggregate
Plug load including appliances rated less than 25 kVA	Not Required	All plug load in aggregate; groups of plug loads exceeding 25 kVA connected load in an area less than 5,000 sq ft	All plug load separated by floor, type or area; groups of plug loads exceeding 25 kVA connected load in an area less than 5,000 sq ft	All plug loads separated by floor, type or area; all groups of plug loads exceeding 25 kVA connected load in an area less than 5,000 sq ft
Elevators, escalators, moving walks, and transit systems	Not Required	All Loads in Aggregate	All Loads in Aggregate	All Loads in Aggregate
Other individual non-HVAC loads or appliances rated 25 kVA or greater	Not Required	All Loads in Aggregate	All Loads in Aggregate	All Loads in Aggregate
Industrial and commercial load centers 25 kVA or greater including theatrical lighting installations and commercial kitchens	Not Required	All Loads in Aggregate	All Loads in Aggregate	All Loads in Aggregate
Renewable power source (net or total)	Each Group	Each Group	Each Group	Each Group
Loads associated with renewable power source	Not Required	All Loads in Aggregate	All Loads in Aggregate	All Loads in Aggregate
Charging stations for electrical vehicles	All Loads in Aggregate	All Loads in Aggregate	All Loads in Aggregate	All Loads in Aggregate

Product Solutions at a Glance

Title 24 Standa	rds									
	130.1(a) Area Controls	130.1(b) Multi-Level Controls	130.1(c) Shut-Off Controls	130.1(d) Daylighting	130.1(f) Control Interactions	130.2(c) Multi-Level Outdoor Lighting	130.5 (a & b) Service Metering	110.129(c) Demand Management Controls	130.3(a) Sign Lighting Controls	130.5(d) Receptacle Control
					2					
Product Soluti	ons									
Occupancy Sensors	×		×	×	×					×
Vacancy Sensors	×				×					
Smart Wallbox Dimmers	×	×	×		×					×
Photocells				×	×	×			×	
Provolt Room Controller (PRC)	×	×	×	×	×			×		×
IRC	×	×	×	×	X			X		×
Lumina [™] RF Standalone Wireless Room Control System	×	×	×	×	×			×		×
Intellect- Enabled Fixtures	×	×	×	×	×			×		×
GreenMAX® DRC	×	×	×	×	×			×	×	×
GreenMAX®	×	×	×	×	×	×		×	X	×
Track Light Limiting Panel (TLLP)	×	×			×					
Sapphire™	×	×	×	×	×	×		×	×	×
Marked Controlled Receptacles										×
VerifEye™ Submetering Solutions							×	×		

NOTE: Solutions may require other products to complete a code compliant energy control solution—consult Leviton for more information.

Leviton Applications at a Glance



Note: All indicated applications can be found in the Title 24 Applications Cookbook. Solutions represented in this Design Guide are represented by a green X.

Title 24 Stand	ards								
	Small Office	Open Office	Conference Room	Classroom	Common Area	Library	Restaurant	Warehouse	Energy Monitoring
Product Solut	ions						!		
Occupancy Sensors	X	×	×	X	×	×	X	×	
Vacancy Sensors	×	×	×	×	×	×	X	X	
Smart Wallbox Sensors	×				×				
Photocells	X	×	X	×	×	×	X	X	
Provolt Room Controller (PRC)	×	×	×	×	×	×	×	×	
IRC	×	X	X	X	X	X	×	X	
Lumina RF Standalone Wireless Room Control System	×	×	×	×	×	×	×	×	
Intellect- enabled Fixtures	×	×	×	×	×	×	×	×	
GreenMAX DRC	×	×	×	×	×	×	×	×	
GreenMAX	X	×	×	X	×	X	×	×	
Track Light Limiting Panel (TLLP)	×				×	×	×	×	
Sapphire™	×	×	×	×	×	×	×		
Marked Controlled Receptacles	X	×	×	×	×	×	×	×	
VerifEye™ Submetering Solutions	×	×	×	×	×	×	×	×	×

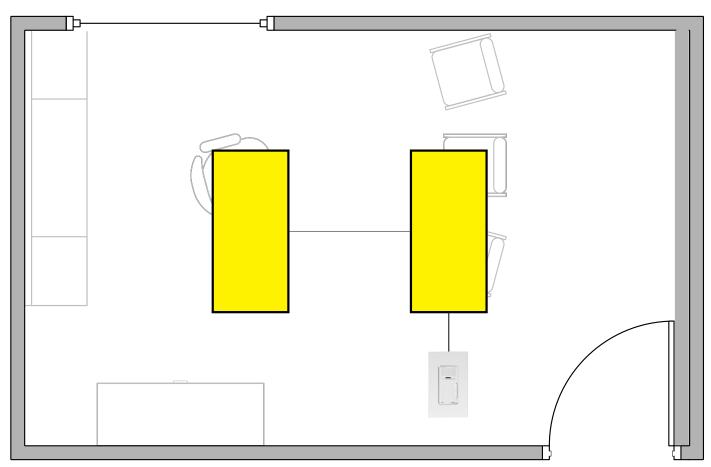
Small Office—Single Zone

FEATURED LEVITON 2022 TITLE 24 SOLUTION

Smart Wallbox Sensor

- Simple occupancy/vacancy sensing and dimming solution and fits in a standard wallbox
- Simple pushbutton programming
- Create multi-way capabilities for up to 5 devices on all models with Leviton Push to Pair (P2P) process
- App based configuration and customization make for a convenient, affordable solution that meets a range of needs





Meets the Following Requirements:

- Section 130.1(a)

 Area Controls
 Manual ON/OFF
- Section 130.1(b)
- Multi-Level Controls - Dimming
- Section 130.1(c)
 - Shut-Off Requirements
 - Occupancy Control
 - Partial-ON
 - Partial-OFF
- Section 130.1(d)
 - Daylighting

Features:

- O-10V Dimming and Partial-ON/OFF and Auto-ON/OFF Control
- Occupancy or Vacancy Sensing
- Sensitivity Timeouts
- VerifEye Submetering Solutions can be used to comply with 2022 Title 24 service metering and disaggregation of electrical circuits requirements

What you will need (sold separately)

_

Quantity

1

Smart PIR 0-10V Dimming Wallbox Sensor ODD10-IDW/ODD10-IDI

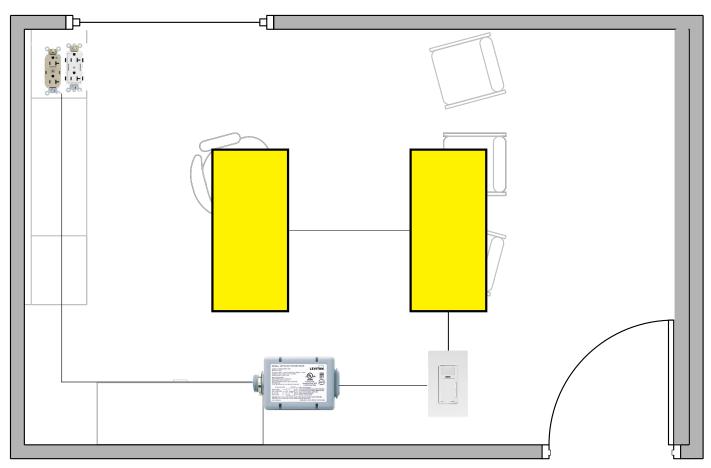
Small Office—Single Zone w/Plug Load Control

FEATURED LEVITON 2022 TITLE 24 SOLUTION

Smart Wallbox Sensor

- Simple occupancy/vacancy sensing and dimming solution and fits in a standard wallbox
- Simple pushbutton programming
- Create multi-way capabilities for up to 5 devices on all models with Leviton Push to Pair (P2P) process
- App based configuration and customization make for a convenient, affordable solution that meets a range of needs





Meets the Following Requirements:

- Section 130.1(a) - Area Controls - Manual ON/OFF
- Section 130.1(b) - Multi-Level Controls - Dimming
- Section 130.1(c)
 - Shut-Off Requirements - Occupancy Control
 - Partial-ON
 - Partial-OFF
- Section 130.1(d) - Daylighting
- Section 130.5(d) - Receptacle Control/ Plug Load Control

Features:

- 0-10V Dimming and Partial-ON/OFF and Auto-ON/OFF Control
- Occupancy or Vacancy Sensing
- Sensitivity Timeouts
- Plug Load Control
- VerifEye Submetering Solutions can be used to comply with 2022 Title 24 service metering and disaggregation of electrical circuits requirements

What you will need (sold separately)

Quantity

	Smart PIR 24V Wallbox Sensor ODD24-IDW	1
	Super Duty Power Pack OPP20-RD4	1
	Marked "Controlled" Receptacles 16352-2PW	1



LEVITO

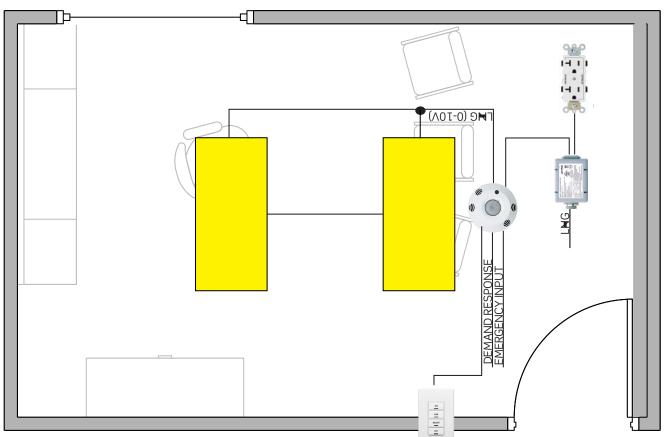
Small Office—Single Zone

FEATURED LEVITON 2022 TITLE 24 SOLUTION

Provolt[™] Room Controller (PRC)

- Comprehensive solution integrates multiple lighting control strategies—occupancy sensing, 0-10V dimming, daylight harvesting, partial-ON, partial-OFF and demand response
- Combined line voltage multi-technology or PIR sensor, power pack and photocell in a selfcontained, easy-to-install device
- Configure and test controls from an Android or Apple smart device via the Provolt Bluetooth
 Mobile App—reduces callbacks





Meets the Following Requirements:

• Section 130.1(a)

- Manual ON/OFF
- Section 130.1(b) - Multi-Level Controls - Dimming
- Section 130.1(c)
 Shut-Off Requirements
 Occupancy Control
 Partial-ON
 - Partial-OR
- Section 130.1(d) - Daylighting
- Section 130.1(e) - Demand Response Power Deduction Controls
- Reduction Controls

 Section 130.5(d)

 Receptacle Control/Plug Load
 Control

Features:

- 0-10V Dimming Control
- Self-contained occupancy sensor, photocell and power pack
- Occupancy or Vacancy
- Sensing with Auto-OFF
- Auto Calibration
- Daylighting Set Point Adjustment through Entry
 Station
- Emergency Input
- Decora 4-Button Entry Station
- Plug Load Control
- Time Clock Input
- Demand Response
- VerifEye Submetering Solutions can be used to comply with 2022 Title 24 service metering and disaggregation of electrical circuits requirements

What you will need (sold separately)

Quantity

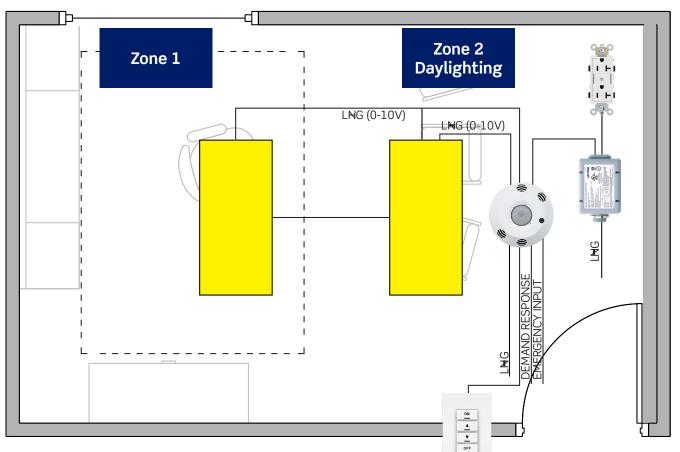
Provolt Room Controller (PRC) 05C04-IDW	1
Provolt Low-Voltage Keypad, 4-Button PLVSW-4LW	1
OPP20 Super Duty Power Pack OPP20-0D1	1
Marked "Controlled" Receptacles 16352-2PW	5

Small Office—Dual Zone

FEATURED LEVITON 2022 TITLE 24 SOLUTION

Provolt[™] Room Controller (PRC)

- Comprehensive solution integrates multiple lighting control strategies—occupancy sensing, 0-10V dimming, daylight harvesting, partial-ON, partial-OFF and demand response
- Combined line voltage multi-technology or PIR sensor, power pack and photocell in a selfcontained, easy-to-install device
- Configure and test controls from an Android or Apple smart device via the Provolt Bluetooth Mobile App—reduces callbacks



Meets the Following Requirements:

- Section 130.1(a) - Area Controls
- Manual ON/OFF
 Section 130.1(b)
- Multi-Level Controls - Dimming
- Section 130.1(c) - Shut-Off Requirements
 - Occupancy Control
 - Partial-ON
 - Partial-OFF
- Section 130.1(d) - Daylighting
- Section 130.1(e) - Demand Response Power Reduction Controls
- Section 130.5(d)
- Receptacle Control/Plug Load Control

Features:

- 0-10V Dimming Control
- Self-contained occupancy sensor, photocell and power pack
- Occupancy or Vacancy
- Sensing with Auto-OFF
- Auto Calibration
- Daylighting Set Point
 Adjustment through Entry
 Ctation
- StationEmergency Input
- Decora 4-Button Entry Station
- Plug Load Control
- Time Clock Input
- Demand Response
- VerifEye Submetering Solutions can be used to comply with 2022 Title
- 24 service metering and disaggregation of electrical circuits requirements

What you will need (sold separately) Quantity Provolt Room Controller (PRC) 0. 1 06C20-MDW Provolt Low-Voltage Keypad, 4-Button 1 1 1 1 1 1 PLVSW-4LW **OPP20 Super Duty Power Pack** 1 OPP20-0D1 Marked "Controlled" Receptacles 5 16352-2PW





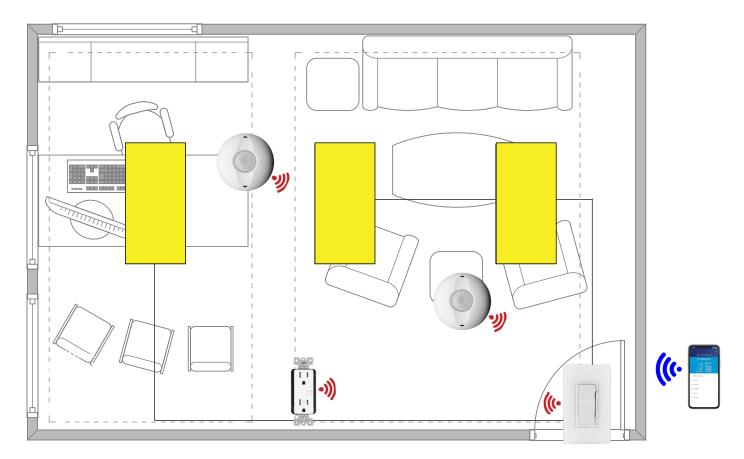
Small Office—Dual Zone

FEATURED LEVITON 2022 TITLE 24 SOLUTION

Lumina™ RF Standalone Wireless Room Control System

- Add wireless control to virtually any ON/OFF or dimming device with Lumina RF devices
- Compatible with virtually all lamp fixtures and load control devices
- Scalable, flexible wireless mesh solution to meet the unique control needs of virtually any space all without having to pull new wires
- Configure, monitor, and control the system with the Lumina RF Standalone App using an Android or iOS smart device for Ladderless Commissioning





Meets the Following Requirements:

- Section 130.1(a)
- Area Controls
- Manual ON/OFF • Section 130.1(b)
- Multi-Level Controls - Dimming • Section 130.1(c)
- Shut-Off Requirements
- Occupancy Control
- Partial-ON
- Partial-OFF

Control

20

- Section 130.1(d) - Daylighting
- Section 130.5(d) - Receptacle Control/Plug Load

Features:

- 0-10V Dimming Control
- Occupancy or Vacancy
- Multi-Zone Daylight Harvesting
- Plug Load Control
- Wireless Communication via Mesh Network
- VerifEye Submetering Solutions can be used to comply with 2022 Title 24 service metering and disaggregation of electrical circuits requirements

What you will r	What you will need (sold separately)		
	Lumina RF 0-10V Dimmer Room Controller with 5A Relay DL057-D0Z	1	
	PIR Wireless Occupancy Sensor & Photocell ZC015-BIW	2	
	Zigbee Controlled Receptacle ZSTLR-1HW	1	

Small Office—Dual Zone

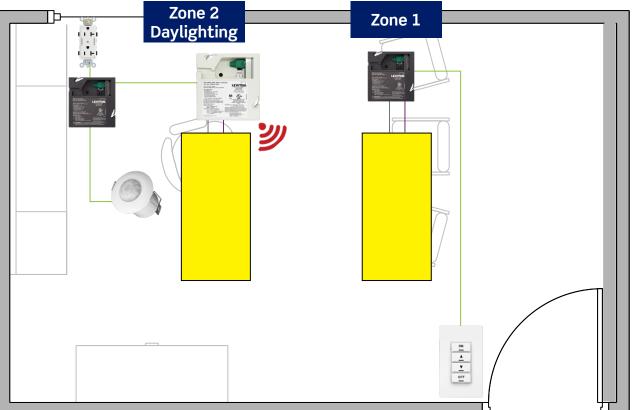
FEATURED LEVITON 2022 TITLE 24 SOLUTION

GreenMAX® DRC Wired Room Control System

- Fully distributed room control system
- Room agnostic—each room operates independently of other rooms—not dependent on network
 processors or centralized controllers for operation
- Easy-to-specify, scalable—add and rearrange products to accommodate the evolving needs of any application, and re-zone/re-group and adjust settings with ease through the GreenMAX DRC App for smart devices



LEVITO



Meets the Following Requirements:

- Section 130.1(a) - Area Controls
- Area Controls
 Manual ON/OFF
- Section 130.1(b) - Multi-Level Controls - Dimming
- Section 130.1(c) - Shut-Off Requirements
 - Occupancy Control - Partial-ON
 - Partial-OFF
- Section 130.1(d) - Daylighting
- Section 130.5(d)

 Receptacle Control/Plug Load Control

Features:

- Occupancy/Vacancy Sensing
- Scene Control
- Daylighting
- Plug Load Control
- VerifEye Submetering Solutions can be used to comply with 2022 Title 24 service metering and disaggregation of electrical circuits requirements

What you will r	Quantity	
	GreenMAX DRC Line Voltage Room Controller DRC07-ED0	1
	GreenMAX DRC 0-10V Smart Pack DRD07-ED0	2
	GreenMAX DRC Digital Sensor OSR05-ICW	1
	GreenMAX DRC 4-Button Digital Keypad DRKDN-C4W	1
	Marked Controlled Receptacle 16352-2PW	1

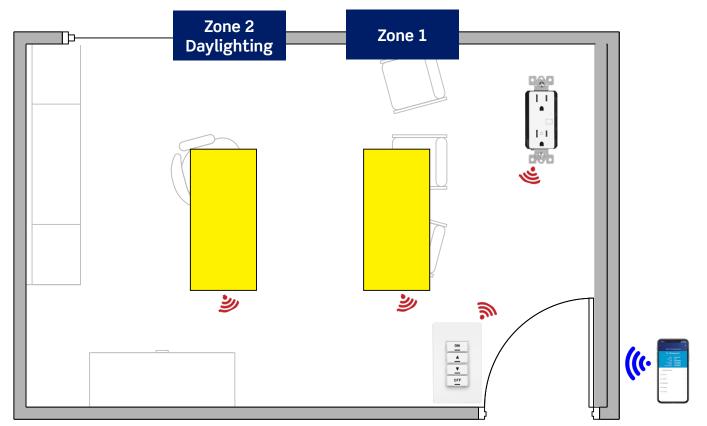
Small Office - Dual Zone

FEATURED LEVITON 2022 TITLE 24 SOLUTION

GreenMAX® DRC Wireless With Intellect-Enabled Fixtures

- Fully distributed room control system
- Room agnostic—each room operates independently of other rooms—not dependent on network processors or centralized controllers for operation
- Easy-to-specify, scalable—add and rearrange products to accommodate the evolving needs of any application, and re-zone/re-group and adjust settings with ease through the GreenMAX DRC App for smart devices





Meets the Following Requirements:

- Section 130.1(a)
 - Area Controls
- Manual ON/OFF
- Section 130.1(b) - Multi-Level Controls
- Section 130.1(c)
 - Shut-Off Requirements - Occupancy Control
 - Partial-ON
- Partial-OFF
- Section 130.1(d) - Daylighting
- Section 130.5(d)
- Receptacle Control/Plug Load Control

- Features:
- Wi-Fi Networking
- 2 Zones
- Occupancy/Vacancy Sensing
- Scheduling
- Scene Control
- Daylighting
- Plug Load Control
- Emergency Lighting
- VerifEye Submetering Solutions can be used to comply with 2022 Title 24 service metering and disaggregation of electrical circuits requirements

What you will need (sold separately)

- Quantity
- Image: Second second

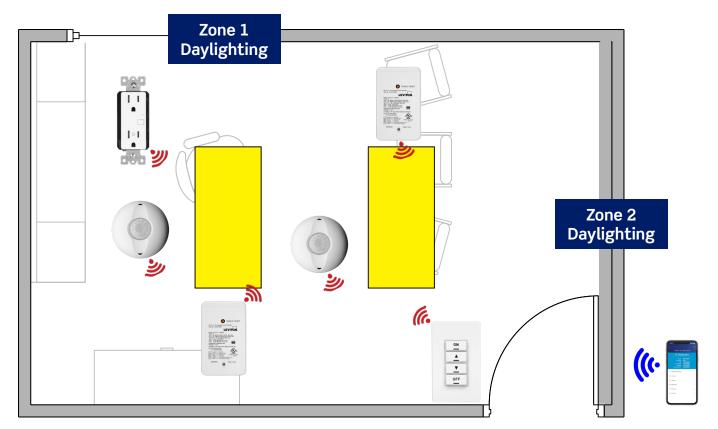
Small Office - Dual Zone

FEATURED LEVITON 2022 TITLE 24 SOLUTION

GreenMAX® DRC Wireless with 0-10V Dimming

- Fully distributed room control system
- Room agnostic—each room operates independently of other rooms—not dependent on network processors or centralized controllers for operation
- Easy-to-specify, scalable—add and rearrange products to accommodate the evolving needs of any application, and re-zone/re-group and adjust settings with ease through the GreenMAX DRC App for smart devices





Meets the Following Requirements:

• Section 130.1(a)

- Area Controls
- Manual ON/OFF
- Section 130.1(b)
- Multi-Level Controls
- Section 130.1(c) - Shut-Off Requirements
 - Occupancy Control
 - Partial-ON
- Partial-OFF
- Section 130.1(d) - Daylighting
- Section 130.5(d)
- Receptacle Control/Plug Load Control

Features:

- Wi-Fi Networking
- 2 Zones
- Occupancy/Vacancy Sensing
- Scheduling
- Scene Control
- 0-10V Dimming
- Plug Load Control
- Emergency Lighting
- VerifEye Submetering Solutions can be used to comply with 2022 Title 24 service metering and disaggregation of electrical circuits requirements

What you will need (sold separately)

Quantity

	GreenMAX DRC 4-Button Wireless Keypad Room Controller DRKDN-U4W	1
	Wireless 10A, 0-10V Dimming Power Pack LU107-DNW	2
	Wireless PIR Occupancy Sensor & Photocell ZC015-BIW	2
9 <u>8</u> 9 	Zigbee Controlled Receptacle ZSTLR-1HW	Varies

title24.leviton.com 23

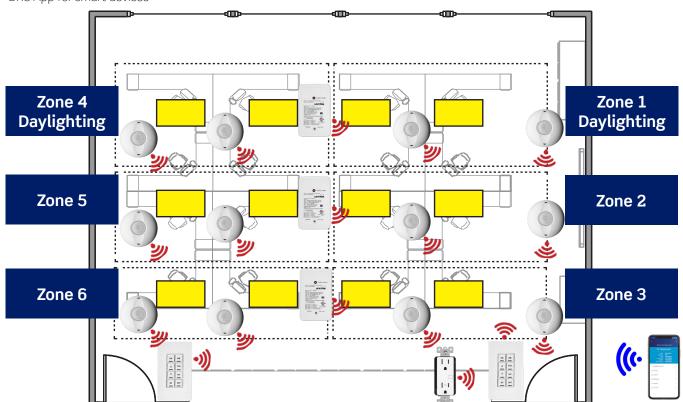


Open Office

FEATURED LEVITON 2022 TITLE 24 SOLUTION

GreenMAX® DRC Wireless Room Control System

- Fully distributed room control system
- Room agnostic—each room operates independently of other rooms—not dependent on network processors or centralized controllers for operation
- Easy-to-specify, scalable—add and rearrange products to accommodate the evolving needs of any application, and re-zone/re-group and adjust settings with ease through the GreenMAX DRC App for smart devices



Meets the Following Requirements:

- Section 130.1(a)
 - Area Controls - Manual ON/OFF
- Section 130.1(b)
- Multi-Level ControlsSection 130.1(c)
- Shut-Off Requirements
- Occupancy Control - Partial-ON
- Partial-OFF
- Section 130.1(d) - Daylighting
- Section 130.5(d)

 Receptacle Control/Plug Load Control

Features:

- Wi-Fi Networking
- Multiple Zones
- Occupancy/Vacancy Sensing
- Scheduling
- Scene Control
- Daylighting
- Multi-Way Switching
- Plug Load Control
- Emergency Lighting
- VerifEye Submetering Solutions can be used to comply with 2022 Title 24 service metering and disaggregation of electrical circuits requirements

What you will nee	What you will need (sold separately)			
	GreenMAX DRC 8-Button Wireless Keypad Room Controller DRKDN-U8W	1		
	8-Button Wireless Multi-Way Remote DLDNK-08W	1		
	Wireless 10A, 0-10V Dimming Power Pack LU107-DNW	3		
	Wireless PIR Occupancy Sensor & Photocell ZC015-BIW	12		
	Zigbee Controlled Receptacle ZSTLR-1HW	Varies		

Open Office - 9 Zone

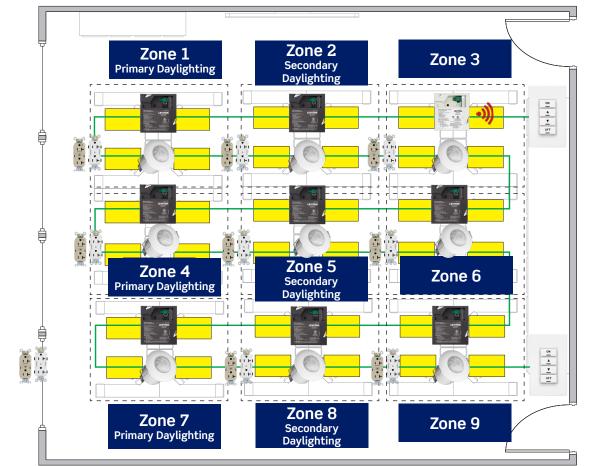
FEATURED LEVITON 2022 TITLE 24 SOLUTION

GreenMAX[®] DRC Wired Room Control System

- Fully distributed room control system
- Room agnostic—each room operates independently of other rooms—not dependent on network
 processors or centralized controllers for operation
- Easy-to-specify, scalable—add and rearrange products to accommodate the evolving needs of any application, and re-zone/re-group and adjust settings with ease through the GreenMAX DRC App for smart devices



LEVITO



Meets the Following Requirements:

- Section 130.1(a)
 Area Controls
 Manual ON/OFF
- Section 130.1(b)
 Multi-Level Controls
- Section 130.1(c) - Shut-Off Requirements
- Occupancy Control
- Partial-ON
- Partial-OFF
- Section 130.1(d) - Daylighting
- Section 130.5(d)
 Receptacle Control/Plug Load Control

- Features:
- Multiple Zones
- Occupancy/Vacancy Sensing
 Calls a duling re-
- SchedulingScene Control
- Daylighting
- Multi-Way Switching
- Plug Load Control
- Emergency Lighting
- VerifEye Submetering Solutions can be used to comply with 2022 Title 24 service metering and disaggregation of electrical circuits requirements

What you will need (sold separately)

mac you manoe	Quantity	
	GreenMAX DRC Line Voltage Room Controller DRC07-ED0	1
	GreenMAX DRC 0-10V Smart Pack DRD07-ED0	8
	GreenMAX DRC Digital Sensor OSR05-ICW	9
	Lighting Control Station RLVSW-4LW	2
	Marked Controlled Receptacle 16352-2PW	9

Quantity

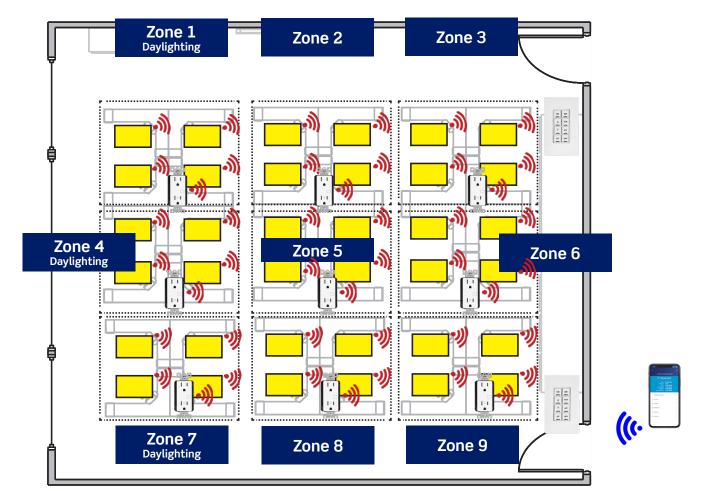
Open Office - 9 Zone

FEATURED LEVITON 2022 TITLE 24 SOLUTION

GreenMAX® DRC Wireless with Intellect-Enabled Fixtrues

- Fully distributed room control system
- Room agnostic—each room operates independently of other rooms—not dependent on network processors or centralized controllers for operation
- Easy-to-specify, scalable—add and rearrange products to accommodate the evolving needs of any application, and re-zone/re-group and adjust settings with ease through the GreenMAX DRC App for smart devices





Meets the Following Requirements:

- Section 130.1(a) - Area Controls
 - Manual ON/OFF
- Section 130.1(b) - Multi-Level Controls
- Section 130.1(c) - Shut-Off Requirements
 - Occupancy Control
 - Partial-ON - Partial-OFF
- Section 130.1(d)
- DaylightingSection 130.5(d)
- Receptacle Control/Plug Load Control

Features:

- Multiple Zones
- Occupancy/Vacancy Sensing
 Sebaduling
- SchedulingScene Control
- Daylighting
- Multi-Way Switching
- Each fixture is technically its own zone and meets 2022 Title 24 requirements for office areas greater than 250 sq ft
- Emergency Lighting
- Wi-Fi Networking
- VerifEye Submetering Solutions can be used to comply with 2022 Title 24 service metering and disaggregation of electrical circuits requirements

	GreenMAX DRC 8-Button Wireless Keypad Room Controller DRKDN-U8W
CLASSROOM	9 Button Wireless Multi Way

What you will need (sold separately)

8-Button Wireless Multi-Way Remote DLDNK-08W	1
Intellect-enabled Fixture LRTH2x2-LED835UNV-LV01	36
Zigbee Controlled Receptacle ZSTLR-1HW	9

Quantity

1

Open Office

FEATURED LEVITON 2022 TITLE 24 SOLUTION

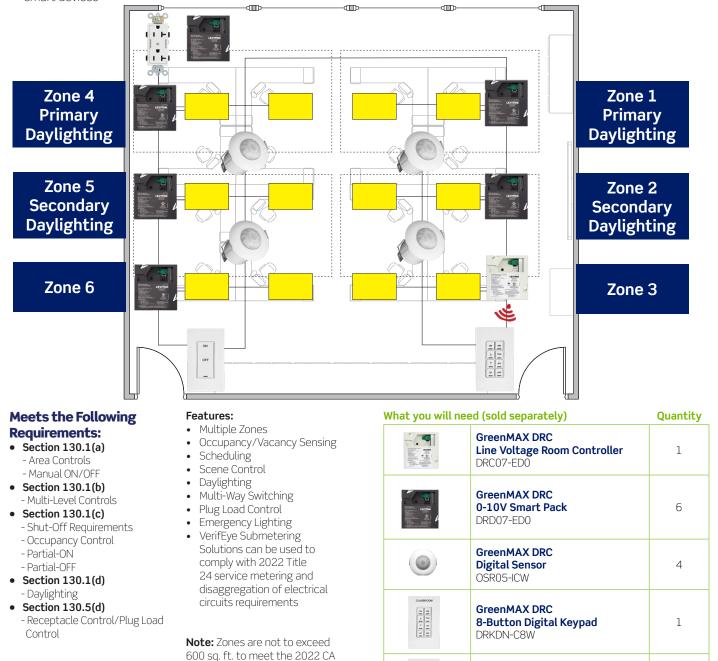
GreenMAX® DRC Wired Room Control System

- Fully distributed room control system
- Room agnostic—each room operates independently of other rooms—not dependent on network
 processors or centralized controllers for operation

Title 24 requirements for office

areas greater than 250 sq. ft.

• Easy-to-specify, scalable—add and rearrange products to accommodate the evolving needs of any application, and re-zone/re-group and adjust settings with ease through the GreenMAX DRC App for smart devices



title24.leviton.com

1

1

27

GreenMAX DRC

Marked Controlled Receptacles

DRKDN-C1W

16352-2PW

1-Button Digital Keypad

ON

orr

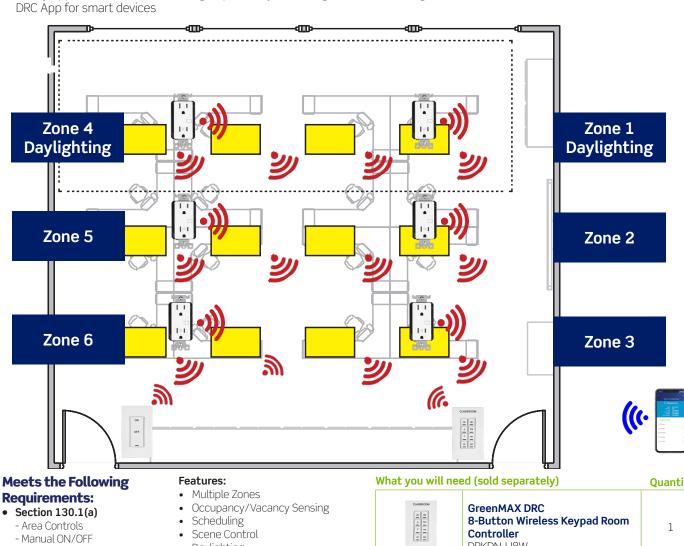


Open Office

FEATURED LEVITON 2022 TITLE 24 SOLUTION

GreenMAX® DRC Wireless with Intellect-Enabled Fixtures

- Fully distributed room control system
- Room agnostic—each room operates independently of other rooms—not dependent on network processors or centralized controllers for operation
- Easy-to-specify, scalable—add and rearrange products to accommodate the evolving needs of any application, and re-zone/re-group and adjust settings with ease through the GreenMAX DRC App for smart devices



- Section 130.1(b) - Multi-Level Controls
- Section 130.1(c) - Shut-Off Requirements
- Occupancy Control
- Partial-ON
- Partial-OFF
- Section 130.1(d) - Daylighting
- Section 130.5(d)

28

- Receptacle Control/Plug Load Control

- Daylighting
- Multi-Way Switching
- Emergency Lighting
- Wi-Fi Networking
- VerifEye Submetering Solutions can be used to comply with 2022 Title 24 service metering and disaggregation of electrical circuits requirements

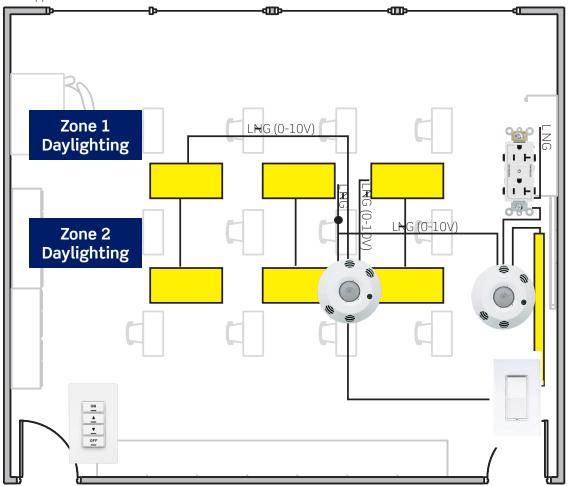
/hat you will nee	Quantity	
	GreenMAX DRC 8-Button Wireless Keypad Room Controller DRKDN-U8W	1
ON OFF	1-Button Wireless Multi-Way Remote DLDNK-01W	1
	Intellect-enabled Fixture LRTH2x2-LED835UNV-LV01	12
	Zigbee Controlled Receptacle ZSTLR-1HW	6

Classroom

FEATURED LEVITON 2022 TITLE 24 SOLUTION

Provolt[™] Room Controller (PRC)

- Comprehensive solution integrates multiple lighting control strategies—occupancy sensing, 0-10V dimming, daylight harvesting, partial-ON, partial-OFF and demand response
- Combined line voltage multi-technology or PIR sensor, power pack and photocell in a selfcontained, easy-to-install compact device
- Configure and test controls from an Android or Apple smart device via the Provolt Bluetooth Mobile App—reduces callbacks



Meets the Following Requirements:

- Section 130.1(a)
 - Area Controls
- Manual ON/OFFSection 130.1(b)
- Multi-Level Controls
- Section 130.1(c)
- Shut-Off Requirements - Occupancy Control
- Occupancy C - Partial-ON
- Partial-ON
- Section 130.1(d) - Daylighting
- Section 130.5(d)
- Receptacle Control/Plug Load Control

Features:

- 0-10V Dimming Control
- Self-Contained Occupancy Sensor, Photocell and Power Pack
- Occupancy or Vacancy Sensing with Auto-OFF
- Auto CalibrationDaylighting Set Point
- Adjustment through Entry Station
- VerifEye Submetering Solutions can be used to comply with 2022 Title 24 service metering and disaggregation of electrical circuits requirements
 Note: Receptacle control is not mandatory in classrooms

Provolt Room Controller (PRC) 2 0. 06C20-MDW Provolt Low-Voltage Keypad, 11 11 11 4-Button 1 PLVSW-4LW Provolt Low-Voltage Keypad, 1-Button 1 PLVSW-1LW Marked "Controlled" Receptacles 1 16352-2PW

What you will need (sold separately)



LEVITO

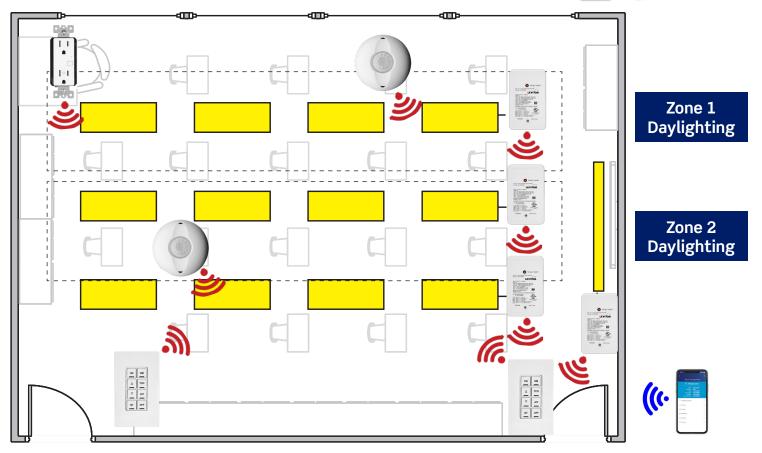
Quantity

Classroom

FEATURED LEVITON 2022 TITLE 24 SOLUTION

Lumina™ RF Standalone Wireless Room Control System

- Add wireless control to virtually any ON/OFF or dimming device with Lumina RF devices
- Compatible with virtually all lamp fixtures and load control devices
- Scalable, flexible wireless mesh solution to meet the unique control needs of virtually any space all without having to pull new wires
- Configure, monitor, and control the system with the Lumina RF Standalone App using an Android or iOS smart device for Ladderless Commissioning



Meets the Following **Requirements:**

- Section 130.1(a) - Area Controls - Manual ON/OFF
- Section 130.1(b) - Multi-Level Controls
- Section 130.1(c) - Shut-Off Requirements
- Occupancy Control - Partial-ON
- Partial-OFF
- Section 130.1(d) - Daylighting
- Section 130.5(d)
- Receptacle Control/Plug Load Control - not mandatory in classrooms

Features:

- 0-10V Dimming Control
- Occupancy or Vacancy
- Sensing
- Auto Calibration • Multi-Zone Daylight Harvesting
- Plug Load Control
- Wireless Communication via Mesh Network
- VerifEye Submetering Solutions can be used to comply with 2022 Title 24 service metering and disaggregation of electrical circuits requirements

Vhat you will need (sold separately)		Quantity
	GreenMAX DRC 8-Button Wireless Keypad Room Controller DRKDN-U8W	2
	Wireless 10A, 0-10V Dimming Power Pack LU107-DNW	4
٢	Wireless PIR Occupancy Sensor & Photocell ZC015-BIW	2
	Zigbee Controlled Receptacle ZSTLR-1HW	Varies



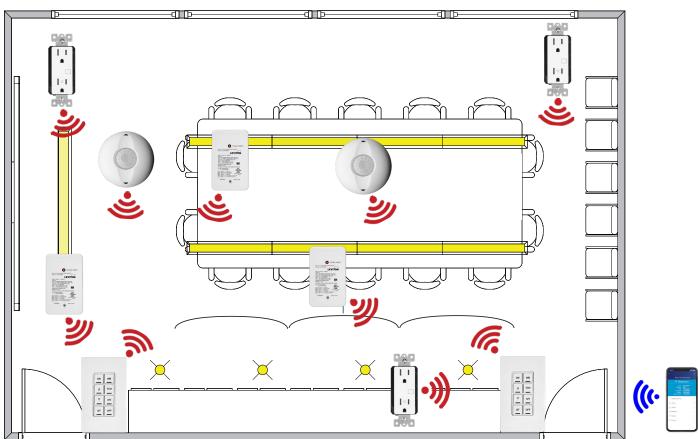
30

Conference Room

FEATURED LEVITON 2022 TITLE 24 SOLUTION

Lumina™ RF Standalone Wireless Room Control System

- Add wireless control to virtually any ON/OFF or dimming device with Lumina RF devices
- Compatible with virtually all lamp fixtures and load control devices
- Scalable, flexible wireless mesh solution to meet the unique control needs of virtually any space all without having to pull new wires
- Configure, monitor, and control the system with the Lumina RF Standalone App using an Android or iOS smart device for Ladderless Commissioning



Meets the Following Requirements:

- Section 130.1(a)

 Area Controls
 Manual ON/OFF
- Section 130.1(b) - Multi-Level Controls
- Section 130.1(c) - Shut-Off Requirements - Occupancy Control
 - Partial-ON
 - Partial-OFF
- Section 130.1(d) - Daylighting
- Section 130.5(d)
 Receptacle Control/Plug Load Control

Features:

- 0-10V Dimming Control
- Occupancy or Vacancy
 Sensing
- Auto Calibration
- Multi-Zone Daylight Harvesting
- Receptacle Control
- Wireless Communication via Mesh Network
- VerifEye Submetering Solutions can be used to comply with 2022 Title 24 service metering and disaggregation of electrical circuits requirements

hat you will	need (sold separately)	Quantity
	Lumina RF Keypad Room Controller DLDNK-08W	2
	Wireless 0-10V Dimming Power Pack LU107-DNW	3
6	Wireless PIR Occupancy Sensor & Photocell ZC015-BIW	2
	Zigbee Controlled Receptacle ZSTLR-1HW	Varies



LEVITON



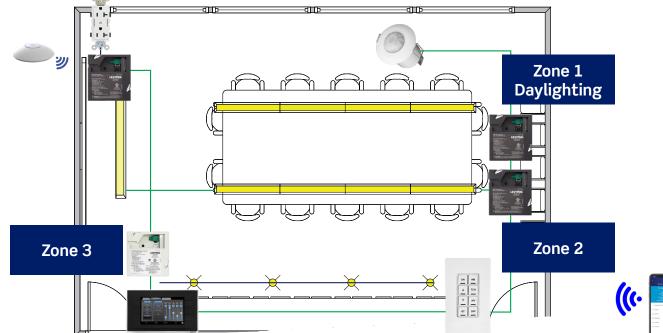
Conference Room

FEATURED LEVITON 2022 TITLE 24 SOLUTION

GreenMAX® DRC Wired with 0-10V Dimming

- Fully distributed room control system
- Room agnostic—each room operates independently of other rooms—not dependent on network
 processors or centralized controllers for operation
- Easy-to-specify, scalable—add and rearrange products to accommodate the evolving needs of any application, and re-zone/re-group and adjust settings with ease through the GreenMAX DRC App for smart devices





Meets the Following Requirements:

- Section 130.1(a)

 Area Controls
 Manual ON/OFF
- Section 130.1(b)
- Multi-Level ControlsSection 130.1(c)
- Shut-Off Requirements - Occupancy Control
- Partial-ON
- Partial-OFFSection 130.1(d)
- Section 130.1(- Daylighting
- Section 130.5(d)
- Receptacle Control/Plug Load Control

Features:

- Multiple zones
- Occupancy/Vacancy Sensing
- Scheduling
- Scene Control
- Daylighting
- Multi-Way Switching
- Plug Load Control
- Emergency Lighting
- VerifEye Submetering Solutions can be used to comply with 2022 Title 24 service metering and disaggregation of electrical circuits requirements

What you will need (sold separately)		Quantity
	GreenMAX DRC Line Voltage Room Controller DRC07-ED0	1
	GreenMAX DRC 0-10V Smart Pack DRD07-ED0	3
	GreenMAX DRC Digital Sensor OSR15-MCW	1
	GreenMAX DRC 8-Button Digital Keypad DRKDN-C8W	1
	Sapphire™ Touch Screen TS007-000	1
	Marked Controlled Receptacles 16352-2PW	1

PoE Access Point

EMA00-000

1

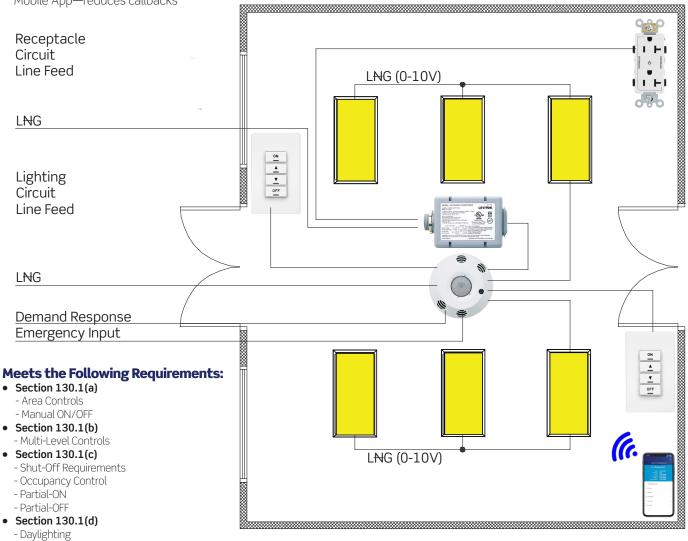
Common Area

FEATURED LEVITON 2022 TITLE 24 SOLUTION

Provolt[™] Room Controller (PRC)

- Comprehensive solution integrates multiple lighting control strategies—occupancy sensing, 0-10V dimming, daylight harvesting, partial-ON, partial-OFF and demand response
- Combined line voltage multi-technology or PIR sensor, power pack and photocell in a selfcontained, easy-to-install compact device
- Configure and test controls from an Android or Apple smart device via the Provolt Bluetooth • Mobile App—reduces callbacks





- Section 130.5(d)
 - Receptacle Control/Plug Load Control

Features:

- 0-10V Dimming Control
- Self-Contained Occupancy Sensor, Photocell and Power Pack
- Vacancy or Occupancy Sensing with Auto-OFF
- Auto Calibration
- Daylighting Set Point
- Adjustment through Entry Station
- Emergency Input
- Decora 4-Button Entry Station
- Plug Load Control
- Time Clock Input
- Demand Response
- VerifEye Submetering Solutions can be used to comply with • 2022 Title 24 service metering and disaggregation of electrical circuits requirements

What you will need (sold separately)

Quantity

* * • •	Provolt Room Controller (PRC) 05C04-IDW	1
	Provolt Low-Voltage Keypad, 4-Button PLVSW-4LW	2
	OPP20 Super Duty Power Pack OPP20-0D1	1
	Marked "Controlled" Receptacles 16352-2PW	5

LEVITO

FEATURED LEVITON 2022 TITLE 24 SOLUTION

- 0-10V PIR High Bay/Low Bay Fixture Mount Occupancy Sensor
- Built-in photocell for convenient automatic daylight harvesting
- Set time delay—up to 30 minutes
- Includes high and low bay lenses to cover a variety of high ceiling applications
- Patented AutoCal™ for set-it and forget-it photocell calibration
- Suitable for use in standard and cold storage applications

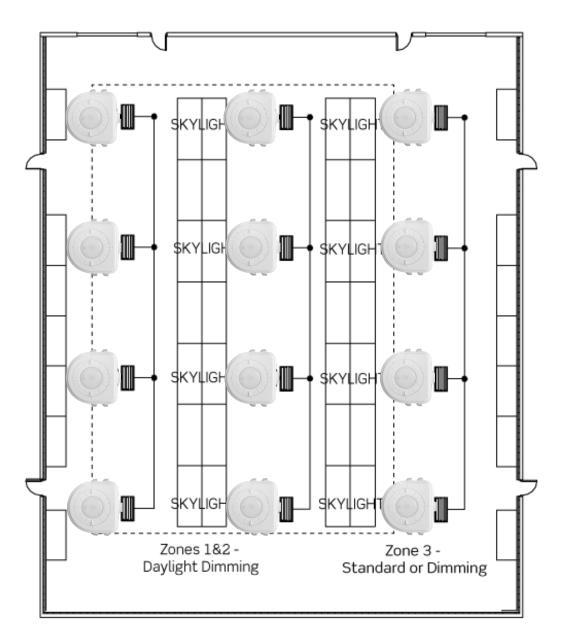


Meets the Following Requirements:

- Section 130.1(c) - Shut-Off Requirements
 - Occupancy Control
 - Partial-ON
 - Partial-OFF
- Section 130.1(d) - Daylighting

Features:

- Occupancy Sensing
- Daylight Harvesting
- 0-10V LED Control
- Variable Time Delay
- False Detection Protection
- VerifEye Submetering Solutions can be used to comply with 2022 Title 24 service metering and disaggregation of electrical circuits requirements





34



FEATURED LEVITON 2022 TITLE 24 SOLUTION

Smart IP66 PIR Integrated Fixture Mount Sensor

- Designed for use with switching or 0-10V dimming ballasts/drivers
- Mounting heights from 8-40 ft.
- Multiple daylight modes as well as partial-OFF operation
- High and low bay lenses
- Auto and manual calibration
- Out-of-the-box configuration default modes

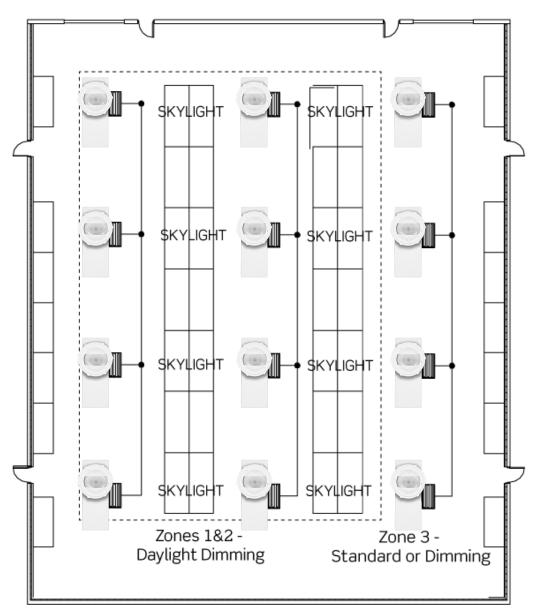


Meets the Following Requirements:

- Section 130.1(c)
- Shut-Off Requirements - Occupancy Control
- Partial-ON
- Partial-OFF • Section 130.1(d)
 - Daylighting

Features:

- Occupancy Sensing
- Daylight Harvesting
- 0-10V LED Control
- Variable Time Delay
- False Detection Protection
- VerifEye Submetering Solutions can be used to comply with 2022 Title 24 service metering and disaggregation of electrical circuits requirements



What you will need (sold separately)		Quantity
	Smart IP66 PIR Integrated Fixture Mount Sensor ZLD1Z-I0W	1 per fixture

FEATURED LEVITON 2022 TITLE 24 SOLUTION

GreenMAX[®] DRC Smart Packs

- Integrates common sensing, dimming, switching, and advanced daylight harvesting applications from the same cabinet
- BACnet IP native in each cabinet for seamless BMS integration
- Industry leading 25,000A Short Circuit Current Rating (SCCR) at 277V
- Integrated 0-10V dimming/switching relay
- Built-in override switch allows manual control of each load individually



Meets the Following Requirements:

- Section 130.1(a)
- Area Controls
- Manual-ON/OFF
- Section 130.1(b)
- Multi-Level Controls
- Dimming
- Section 130.1(c)
- Shut-Off Requirements
- Partial-OFF Occupancy Control
- Section 130.1(d)
- Daylighting

• Section 130.1(e)

- Demand Response Power Reduction Controls



- Relay Control
- Occupancy Sensing

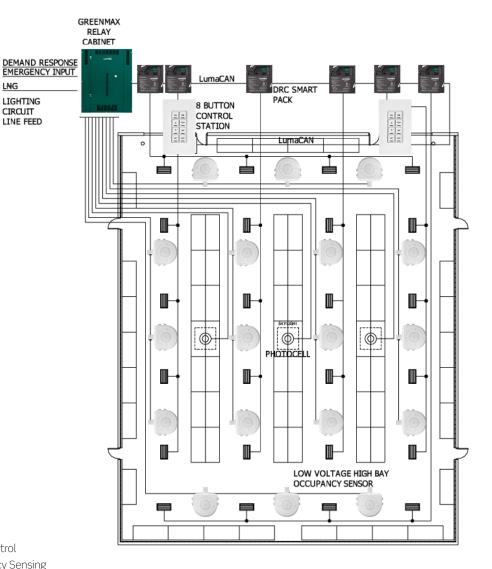
LNG

LIGHTING

LINE FEED

CIRCUIT

- Daylight Harvesting
- Decora 4 Button Entry • Stations
- Software and Handheld • Remote Programming
- Astronomical Time Clock •
- Scheduling (Behavior Control)
- Demand Response
- HVAC and Emergency • Interface
- Building Automation (BACnet)
- Fail-Safe Circuitry (NFPA Compliant) • Partial-OFF
- VerifEye Submetering Solutions can be used to comply with 2022 Title 24 service metering



What you will need (sold separately)

Ouantity

GreenMAX Relay Control System RxxTC-100 RPMxx-xxx Rxxxx-xxx RHDU1-xxx RELAY-xxx	1
GreenMAX DRC Smart Pack (DRC) DRD07-ED0	6
Fixture Mount PIR High/Low Bay Dimming Occupancy Sensor HB011-PDX	18
GreenMAX Digital Lighting Control Station, 8-Button RDGSW-8CW	2

LEVITON

FEATURED LEVITON 2022 TITLE 24 SOLUTION

GreenMAX[®] Relay Control System

- Integrates common sensing, dimming, switching, and advanced daylight harvesting applications from the same cabinet
- BACnet IP native in each cabinet for seamless BMS integration
- Industry leading 25,000A Short Circuit Current Rating (SCCR) at 277V
- Integrated 0-10V dimming/switching relay
- Built-in override switch allows manual control of each load individually



Meets the Following Requirements:

Features:

Stations

Interface

(BACnet)

• Partial-OFF

Software and Handheld

Astronomical Time Clock

Scheduling (Behavior Control)

Remote Programming

Demand Response

• Building Automation

Fail-Safe Circuitry

(NFPA Compliant)

• VerifEye Submetering Solutions can be used to

comply with 2022 Title

24 service metering

HVAC and Emergency

•

•

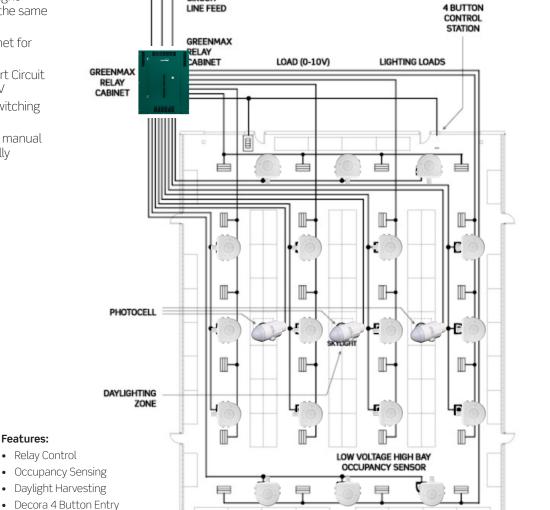
•

•

.

.

- Section 130.1(a)
- Area Controls
- Manual-ON/OFF
- Section 130.1(b)
- Multi-Level Controls
- Dimming
- Section 130.1(c)
- Shut-Off Requirements
- Partial-OFF Occupancy Control
- Section 130.1(d)
- Daylighting
- Section 130.1(e)
- Demand Response Power **Reduction Controls**



EMERGENCY INPUT

LINE

LIGHTING

CIRCUIT

DEMAND

RESPONSE

What you will need (sold separately)

GreenMAX Relay Control System RxxTC-100 | RPMxx-xxx | Rxxxx-xxx | 1

Quantity

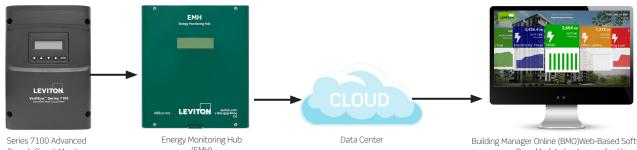
RHDU1-xxx | RELAY-xxx **Lighting Control Station** 1111 2 RLVSW-4LW Low Voltage High Bay Occupancy Sensor 18 OSFHD-xxW Indoor Photocell 3 PCSKY-000

Energy Monitoring Solution

FEATURED LEVITON 2022 TITLE 24 SOLUTION

VerifEye[™] Submetering Solutions

- Comprehensive line of submeters, communication products, and software solutions
- Simple installation in new or existing facilities
- Measurement & Verification (M&V) capabilities with data collection and storage
- Ideal for real-time energy monitoring and tenant billing
- Integrate with Building Management Systems for energy efficiency and savings
- Meets separation of load requirements with the ability to measure various loads



ν

Branch Circuit Monitor

(EMH)

Building Manager Online (BMO)Web-Based Software: Base Module (code compliant)Advanced Reporting Module • Tenant Billing Module



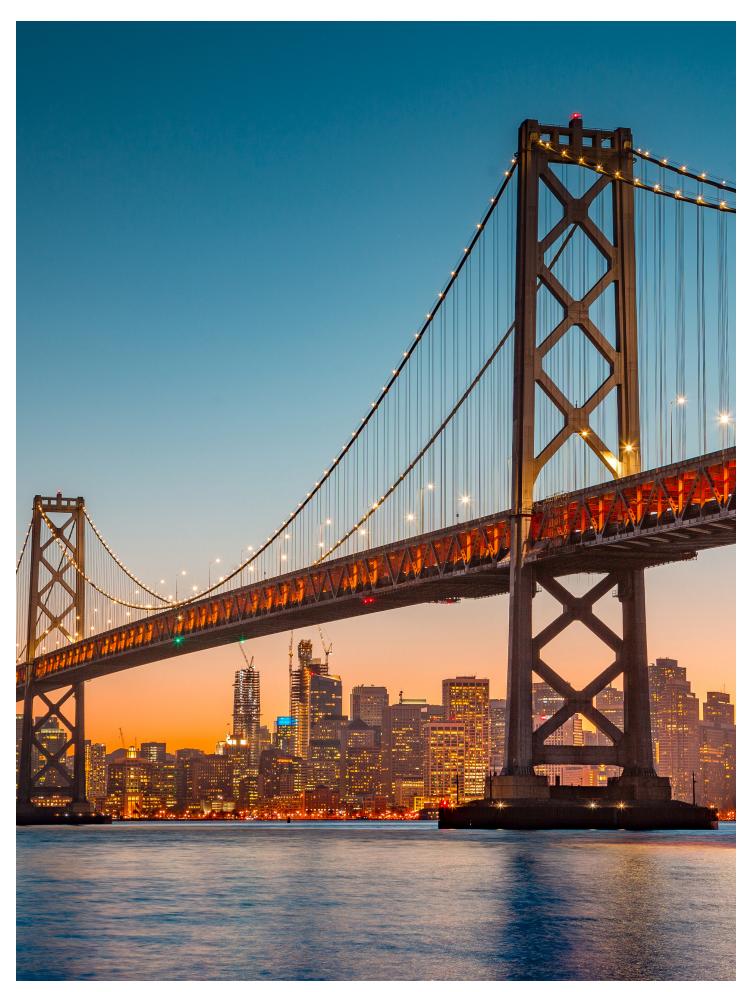
Meets the Following Requirements:

- Section 130.5(a)
 - Service Metering, Disaggregation of Electrical Circuits
- Section 130.5(b)
 - Separation of Loads for Energy Monitoring

Notes

• Meets all local and national submetering requirements including 2022 Title 24, City of Seattle, and New York Local Law 88

Nhat you will need (sold separately)		Quantity
LINK	Series 7000-7100 Advanced Branch Circuit Monitor 71D48-XXX / 71D12-XXX	1
	Energy Monitoring Hub A8812-xxx	1
	Building Manager Online (BMO) BMOSW-050 / BMOSW-MTR	Varies by metering points required



Non-Residential Solutions for 2022 Title 24 Compliance

Sensing Controls

- Range of occupancy and vacancy sensors for any application
- Plug load control with OPP20 Super Duty Power Pack
- 24 AC/DC input for integration with HVAC/BAS systems
- Industry-leading layout and applications

Smart Wallbox Sensors

- Combines occupancy/vacancy sensing with ON/OFF switching, 0-10V or phase dimming
- Easy programming and configuration with default mode, pushbutton configuration, or the Smart Sensor App
- Add a Power Pack and Controlled Receptacles for plug load control
- Create multi-way control with up to 5 devices
- Non-neutral and antimicrobial models available

Provolt[™] Room Controller (PRC)

- Requires only two devices to be installed for high performance lighting controls—0-10V dimming, occupancy and vacancy sensing, partial-ON, partial-OFF, daylight harvesting and demand response
- Perform all testing, configuration and control using the Provolt App
- Features customizable room templates for fast multi-room replication

Integrated Room Control (IRC)

- Combines 0-10V dimming, occupancy/vacancy sensing, partial-ON, partial-OFF, daylight harvesting and demand response ca pabilities in a stand-alone package
- Kitted with sensor, photocell, and 4-button switch
- Autocal ${}^{\scriptscriptstyle \mathrm{M}}$ automatic photocell calibration and Ladderless Commissioning ${}^{\scriptscriptstyle \mathrm{M}}$
- Easy automatic closed or open loop multi-zone daylight harvesting control
- Auto 100 hour burn-in

Lumina™ RF Standalone Wireless Room Control System

- Ideal retrofit solution for multi-zone control with wireless controls
- Compatible with virtually all lamps
- Wireless control for any ON/OFF, 0-10V and phase cut dimming applications
- Add additional components for multi-location control, occupancy/vacancy sensing, daylight harvesting and more
- Program using the Lumina RF Standalone App

Intellect™ -enabled Fixtures

- Virtually any fixture can be Intellect-enabled for in fixture control
- Integrates wireless dimming, occupancy/vacancy sensing and multi-zone daylight harvesting
- Configure, monitor and control a space using the GreenMAX DRC App















GreenMAX® DRC Room Control System

- Scalable wired and wireless distributed room control system with each room operating independently of others
- Plug-and-play, Category 6, RJ45 hardwired digital network or wireless mesh system
- Fully configurable using the GreenMAX DRC App

GreenMAX® Relay Control System

- Integrates common sensing, dimming, switching, and advanced daylight harvesting applications from the same cabinet
- BACnet IP native in each cabinet for seamless BMS integration
- Industry leading 25,000A Short Circuit Current Rating (SCCR) at 277V
- Integrated 0-10V dimming/switching relay
- Built-in override switch allows manual control of each load individually
- Program with preset "Behaviors" using the handheld display Unit (HDU)

Track Light Limiting Panel (TLLP)

- Prevents overloaded circuits
- Provides tamper-proof current limiting protection for track lighting
- Sets a fixed power consumption limit for designer lighting installations by using the volt amperage rating of the breaker instead of watts per linear feet
- Factory configured to customer specifications—arrives ready to install
- Reduces installation costs—no programming required

Sapphire™ Touch Screen Room Controller

- Room Controller function—connects all energy management devices together in a space without requiring a gateway or hub
- Color turning—for circadian rhythms
- Scheduler—provides 7-day rotating schedule, holiday exception calendar, special events calendar and astronomical time clock
- AV controls—delivers single control interface for lighting and AV; ideal for classroom and restaurant application

Marked "Controlled" Receptacles

- Meets requirements for identifying receptacles that will automatically be de-energized as part of an overall plug load control program
- 2014 and 2017 NEC requires all 15A and 20A, 125V receptacles that are automatically controlled to be marked with a specific symbol (の)

VerifEye™ Submetering Solutions

- Complete utility submetering solution
- Comprehensive line of submeters, communication products, and software solutions
- Simple installation in new or existing facilities
- Measurement & Verification (M&V) capabilities with data collection and storage
- Ideal for real-time energy monitoring and tenant billing













Service and Support During Every Step of the Process

There is much more to making lighting more energy efficient than just installing a simple device or two. System design, product selection, installation and service: it all has to come together. That's where Leviton service and support options come in. We'll help you design your system and make the right product selections so you can create a lighting control system that does exactly what you want it to do while saving electricity, meeting codes and standards, and even garnering rebates.

It all starts with the Leviton sales representative. Our lighting control specialists are here to support you every step of the way. They can perform on-site facility audits and suggest specific products and strategies for improving lighting energy efficiency.

Exclusive Wealth of Resources

- Exclusive Training contact your local Leviton representative to have a Title 24 expert provide training in person or online exclusively for your team
- **Title 24 App** simplifies Title 24 lighting control requirements and provides examples for common applications—available for Android and Apple devices download at **www.leviton.com/apps**
- Title 24 Web Portal access application diagrams and product solutions visit leviton.com/title24
- Occupancy sensor layout services have a team of experts create occupancy sensor layouts directly on your CAD drawings, complete with a List of Equipment at no cost go to portal.leviton.com
- ez-Learn™ get Leviton smart from the comfort of your home or office with this exclusive 24/7 online training go to www.leviton.com/ezlearn
- Lighting control specialists at your disposal
- Field service engineers for top-level support
- Factory commissioning service
- Dedicated technical support via phone at 800 959-6004



Leviton Manufacturing Co., Inc. Global Headquarters

201 North Service Road, Melville, NY 11747-3138 tel 800-323-8920 tech line (8:00AM-10:00PM ET Mon-Fri, 9:00AM-7:00PM ET Sat, 9:00AM-5:00PM ET Sun) 800-824-3005

Leviton Manufacturing Co., Inc. Lighting & Controls

10385 SW Avery Street, Tualatin, OR 97062 tel 800-736-6682 tech line (6:00AM-4:00PM PT Monday-Friday) 800-954-6004

Visit our website at: leviton.com/title24 ©2023 Leviton Manufacturing Co. Inc. All rights reserved. Subject to change without notice.