Title 24, Part 6 Compliance Guide

Meeting California Energy Codes with BubblyNet

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Title 24, Part 6 Compliance Guide

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Achieving Energy Efficiency Through Bluetooth Network Lighting Controls

This guide explores how BubblyNet's Control system supports compliance with California's Title 24, Part 6 Building Energy Efficiency Standards. It outlines key lighting control strategies and system features that enable businesses to meet rigorous energy performance benchmarks—boosting both operational efficiency and environmental sustainability.

Designed for integration in both new construction and retrofit projects, this guide helps facility managers, designers, and contractors implement BubblyNet's controls to simplify compliance and future-proof lighting infrastructure.

Understanding Title 24, Part 6

Title 24, Part 6 addresses the energy usage and environmental impact of residential and non-residential buildings in California—excluding correctional centers, jails, and prisons. It applies to new construction as well as alterations and additions. The 2022 standards, effective January 1, 2023, are mandatory for all building permits filed on or after that date and are expected to remain in force through at least December 31, 2025.

Indoor lighting is one of the largest energy consumers in commercial buildings. Title 24, Part 6 focuses on reducing this consumption without compromising lighting quality. It sets performance requirements for lighting systems and controls, contributing to California's broader climate goals—including a 100% carbon-neutral energy grid by 2050.

Staying Ahead in a Changing Regulatory Landscape

As California's energy codes evolve, staying compliant becomes increasingly complex. BubblyNet's control system offers a flexible, scalable solution that not only meets today's standards but also adapts to future code updates and technological advancements—supporting long-term sustainability and resilience.

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Net Zero Emission By 2050

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		Private Office (<250 ft²)	Open Office (>250 ft²)	Conference, Meeting, Break Room	Classroom, Lecture Hall, Training Room	Lobby	Corridor	Restroom	Stairwell	Gym	Warehouse	Parking Lot	Facade/ Landscape	Other Exterior
Local Control	Manual Area Control	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	Shut-OFF Control		✓			✓	✓	✓	✓					
Automatic Control	Occupancy-based Full OFF	✓	or ✓	✓	✓	or ✓	or ✓	or ✓	or ✓	✓				
	Occupancy-based Partial OFF						✓		✓		✓	✓		
	Multi-level / Dimming Control	✓	✓	✓	✓			✓		✓	✓	✓		
	Multi-level Daylight Control	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Other Controls	Demand Response	✓	✓	✓		✓								
	Receptacle / Plug Load	✓	✓	✓		✓								
Automatic Control for Exterior Lighting	Daylight Control												✓	✓
	Scheduling Control												✓	✓
	Motion Sensing Control												✓	✓

How we comply

Below, we detail the specific requirements of Title 24 and illustrate how the lighting control capabilities of the BubblyNet system align with these standards. Available in a diverse range of lighting components from different solution providers, our technology enables customers to choose from a wide selection of products and form factors for optimal performance and integration.

Control Requirement	Code Provision	Code Summary	How we comply
MANUAL AREA CONTROL	130.1(a)	All luminaires shall include manual ON and OFF controls, allowing for immediate control of lighting within each enclosed space separated by ceiling-height partitions. Controls should be easily accessible and located within the same area as the lighting they govern.[2]	Manual on/off control with switches, touchscreens and gateways. Various types of switches are available; kinetic, line voltage, and battery powered.
SHUT-OFF CONTROL	130.1(c) 1	All installed luminaires shall be equipped with controls that can shut off lights when spaces are typically unoccupied, either through automatic time-switch controls, occupant sensing controls, or based on typical occupancy times.	**Occupancy/Vacancy sensing Scheduling** Various types of sensors and form factors are available; PIR, DualTech, Microwave, Contact, and People Counting. Scheduling is supported by all BubblyNet devices with no additional hardware required.
OCCUPANCY-BASED FULL OFF	130.1(c) 5	Lighting in specified areas shall be equipped with occupant-sensing controls that can shut off all lighting after a designated period of non-occupancy or when initiated by a timeclock.	**Occupancy/Vacancy sensing** Various types of sensors and form factors are available; PIR, DualTech, Microwave, Contact, and People Counting. Scheduling is supported by all BubblyNet devices with no additional hardware required.

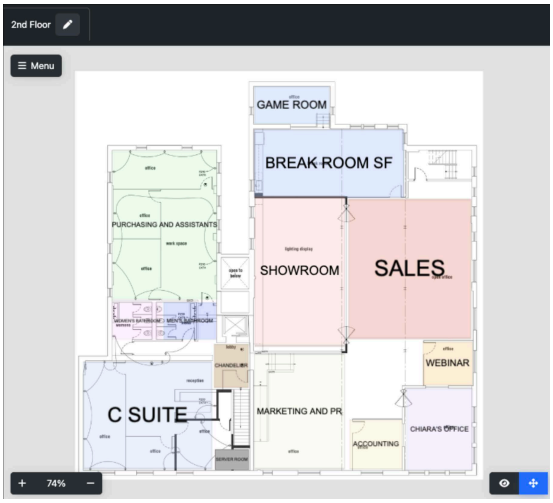
[2] With exceptions as listed in the code, where manual control devices can be inaccessible to unauthorized personnel.

OCCUPANCY-BASED PARTIAL OFF	**130.1(c) 6-7**	Occupant sensing controls in specified areas are required to automatically reduce lighting power by at least 50% when unoccupied, and they must activate lighting to full power upon occupancy, ensuring all designed paths of egress are illuminated. Partial-off occupancy sensors may be used alongside other automatic shutoff methods, except in parking garages where partial-off sensing alone is permissible.	**Occupancy/Vacancy sensing** Various types of sensors and form factors are available; PIR, DualTech, Microwave, Contact, and People Counting. Scheduling is supported by all BubblyNet devices with no additional hardware required.
MULTI-LEVEL / DIMMING CONTROL	**130.1(b)**	Enclosed areas exceeding 100 square feet and with a lighting power density of 0.5 Watt per square foot or higher must implement multi-level lighting controls, enabling adjustable lighting levels. The controls should allow for continuous dimming of LED luminaires from 10% to 100%.	**Continuous dimming** All controllers and drivers are capable of continuous dimming.
MULTI-LEVEL DAYLIGHT CONTROL	**130.1(d)**	In both interior spaces and parking garages, daylight-responsive controls are required for general lighting in designated sidelight and skylit zones. These controls shall automatically adjust lighting power to maintain stable light levels as natural daylight varies. Sidelighted and toplighted (skylit) zones should be controlled separately, and automatic multilevel daylight controls are mandatory for areas where the total lighting power is 120W or more, except for parking garages where the threshold is 60W. Exceptions in the code are applicable based on factors such as total glazing area, obstructions, and glass transmittance, with specific exemptions for small daylight zones.	**Daylight harvesting** Various types of sensors and form factors are available, wired or battery powered.

DEMAND RESPONSE	110.12 (c)-(e), 130.1(e)	Buildings with a total installed lighting power of 4000W or greater must incorporate demand-responsive lighting controls that can automatically reduce lighting power in response to an OpenADR signal.	**Demand response is enabled by connecting a Demand Response Virtual End Node.**
RECEPTACLE (PLUG LOAD) CONTROL	130.5(d)	In specified areas, both controlled and uncontrolled 120V receptacles must be installed. These receptacles shall feature controls capable of automatically turning off at least 50% of receptacles based on typical occupancy or after 20 minutes of vacancy.	**Occupancy-sensing Receptacle / Plug Load Control** Requires a sensor and a Plug Load Controller or a Wireless Receptacle.
AUTOMATIC DAYLIGHTING CONTROL[3]	130.2(c) 1	Outdoor lighting must be equipped with controls such as photo control, astronomical time-switch, or other automated systems based on time-of-day to ensure lights shut off when daylight is available.	**Daylight sensing, GPS Timekeeper and Gateway are some of the options available.**
AUTOMATIC SCHEDULING CONTROL[4]	130.2(c) 2	Outdoor lighting shall be capable of reducing lighting power by 50-90% and turning lights off during scheduled unoccupied periods. Scheduled control, contingent on time-of-day and sunrise/sunset, facilitated by an astronomical timeclock, aligns lighting with typical occupancy patterns. Automatic scheduling controls must be capable of scheduling at least two nighttime periods with independent lighting levels.	**Daylight sensing, GPS Timekeeper + Astronomical Clock are some of the options available.**
MOTION SENSING CONTROL	130.2(c) 3	Outdoor lighting controls shall be capable of reducing lighting power by 50-90% and turning lights off during unoccupied periods. Motion sensing controls should adjust lighting to its dim or off state within 15 minutes of vacancy and reactivate lighting upon occupancy.	**Occupancy + Daylight sensing available for wet locations**

Zone-Based Architecture for Intelligent Control

BubblyNet Commissioning structures devices—luminaires, sensors, and switches—into defined "zones." A zone is a logical group of devices configured to follow a shared control profile. Devices within the same zone behave consistently, allowing for efficient coordination of lighting responses. A single space may include multiple zones to support functions like daylight harvesting or targeted occupancy detection, maximizing energy efficiency and comfort.



Efficient Two-Stage Commissioning Process

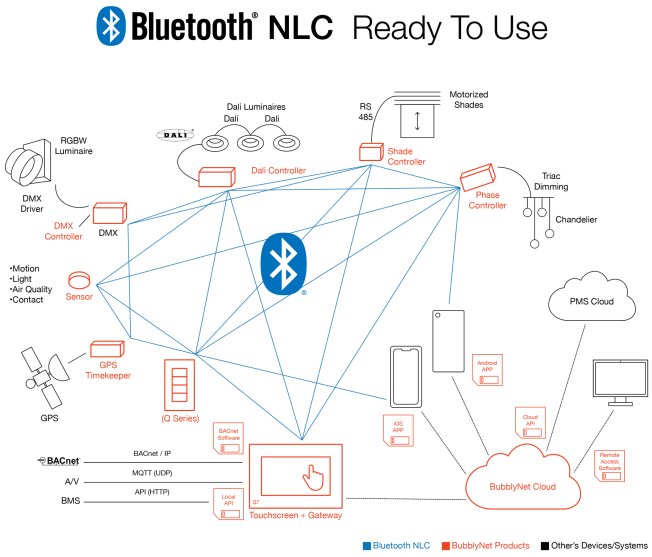
BubblyNet offers a streamlined two-stage commissioning approach through its web and mobile apps (iOS/Android).

- Web App (Pre-Commissioning): Plan and configure your lighting layout remotely, saving time on-site.
- Mobile App (On-Site Commissioning): Apply configurations and complete setup during installation.

Once commissioned, devices store their settings locally and operate autonomously—no central controller required.

Decentralized, Wireless Infrastructure

BubblyNet's fully decentralized system embeds a software controller in each luminaire. This eliminates single points of failure and communication bottlenecks common in traditional systems. Each luminaire independently supports advanced control features, ensuring high performance, resilience, and exceptional scalability—all over a wireless infrastructure with wire-like reliability.



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Comprehensive Control Capabilities

Daylight Harvesting - Adjusts output automatically based on ambient daylight to maintain ideal illumination levels.

Vacancy Sensing - Lights can be manually switched on, then automatically dimmed or turned off when spaces are unoccupied.

Occupancy Sensing - Automatically lights up when motion is detected and dims or shuts off when the area is empty.

Scheduling - Pre-program lights to follow time-of-day and day-of-week routines.

Photocell Integration - Enhances daylight control using real-time ambient light and occupancy data.

Manual Controls - Enable users to manage on/off, dimming, scene selection, and color temperature adjustments.

Timer Switch Control - Automatically powers down lights after a set period from manual activation, with reset via user control.

Scene Selection - Configure up to four lighting scenes per group; scenes can be activated via wireless switch or scheduled.

High-End / Low-End Trim - Define maximum and minimum light levels per zone to optimize performance and comfort.

Power-Up Behavior - Customize how luminaires respond after power restoration (off, last state, or preset level).

Zone Linking - Link multiple zones to share occupancy or manual control behaviors for seamless coordination.

Explore BubblyNet solutions and access full documentation at:

https://BubblyNet.com

For assistance, contact:

sales@bubblynet.com

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CLASSROOM WITH 0-10V LUMINAIRES

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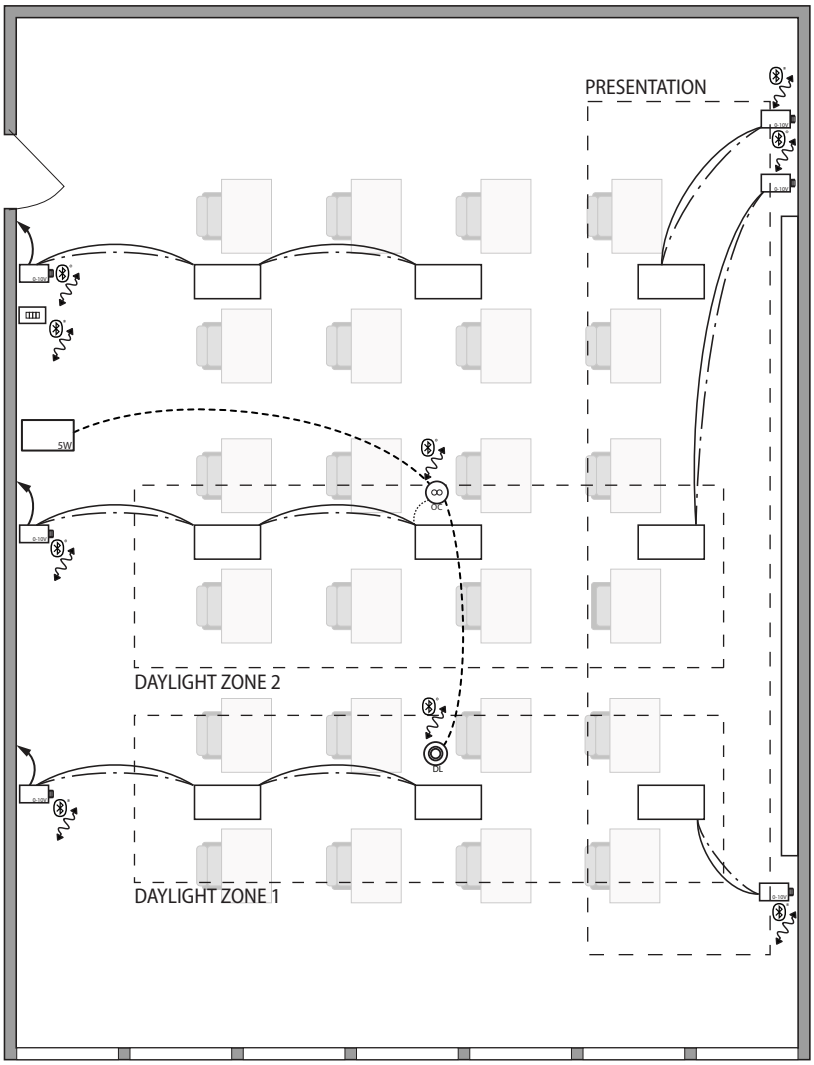

SEQUENCE OF OPERATION:

LIGHT FIXTURES:
- All fixtures are dimmable;
- Max. and Min. Trim can be set via App;

OCCUPANCY CONTROL:
- Fixtures automatically go to set brightness when space is occupied;
- Fixtures automatically turn off or low level when space is vacant;
- Occupancy or Vacancy mode;
- Brightness level for Occupied and Vacant state, delays and transitions can be set via App;

DAYLIGHT CONTROL:
- Smooth and continuous dimming;
- Delays, transitions and light harvesting sensitivity can be set via App;

MANUAL CONTROL:
- ON/OFF, dim up and down, select scene

TIME SCHEDULE:
- Time, recurring day of the week schedules, yearly special day schedules can be set via App;

ADDITIONAL OPTIONS:
- Shade control;
- Sound masking
- CO2 Sensing and threshold warning
- Gateway for clock accuracy, remote assistance, energy and space utilization analytics, BMS integration, voice activated commands
- Emergency Lighting Control

LEGEND

- LINE VOLTAGE
- 0 - 10V
- LOW VOLTAGE
- TO MAIN POWER
- LUMINAIRE LIGHT
- DUAL TECH SENSOR
- KEYPAD SWITCH
- BLUETOOTH MESH
- 0-10V CONTROLLER
- DAYLIGHT SENSOR
- 5W TRANSFORMER

BILL OF MATERIAL

QTY	PRODUCT#	DESCRIPTION
6	C-T20-17-DJ00	0-10V
1	S-OD-C24-D000	DUAL TECH SENSOR
1	S-DL-C12_DTWH	DAYLIGHT SENSOR
1	K-Q4-UDL-00WH	KEYPAD - Q SERIES - 4 BUTTONS WHITE
1	A-T05-12-17-DJ00	5 TRANSFORMER
	BY OTHERS:	
9	0-10V DOWNLIGHT	0-10V DIMMING

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CLASSROOM WITH BLUETOOTH LUMINAIRES

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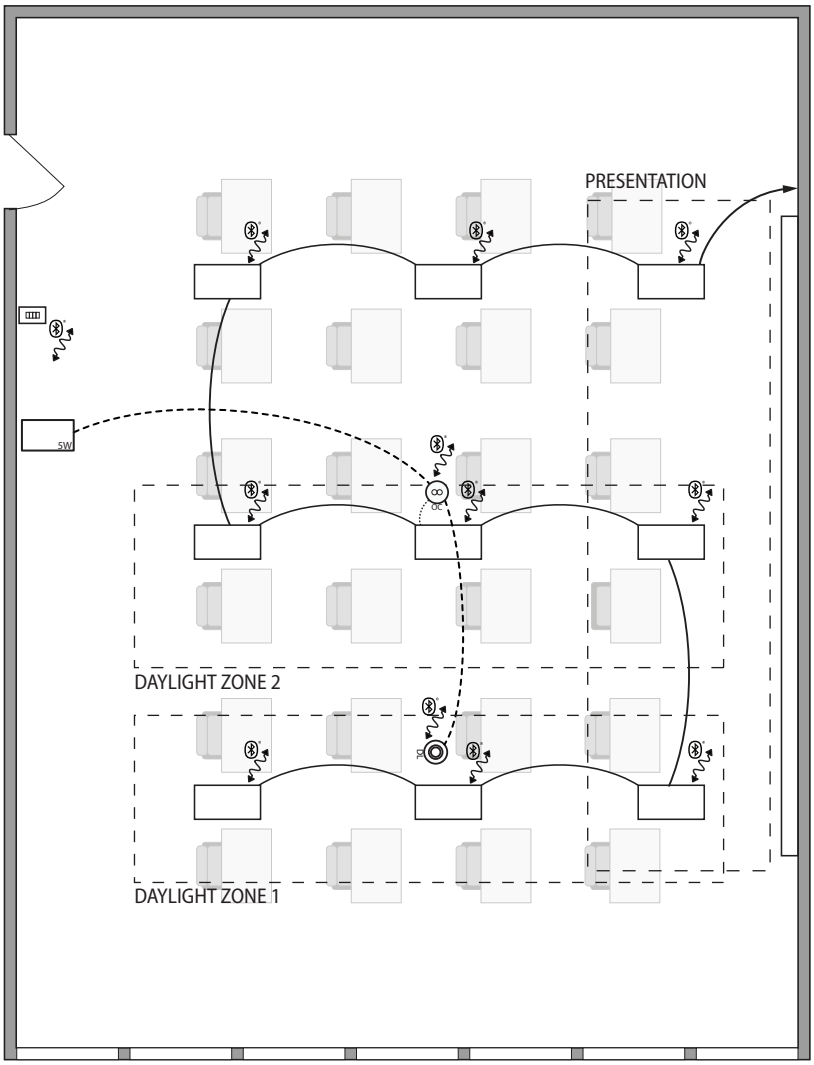

SEQUENCE OF OPERATION:

LIGHT FIXTURES:
- All fixtures are dimmable;
- Max. and Min. Trim can be set via App;

OCCUPANCY CONTROL:
- Fixtures automatically go to set brightness when space is occupied;
- Fixtures automatically turn off or low level when space is vacant;
- Occupancy or Vacancy mode;
- Brightness level for Occupied and Vacant state, delays and transitions can be set via App;

DAYLIGHT CONTROL:
- Smooth and continuous dimming;
- Delays, transitions and light harvesting sensitivity can be set via App;

MANUAL CONTROL:
- ON/OFF, dim up and down, select scene

TIME SCHEDULE:
- Time, recurring day of the week schedules, yearly special day schedules can be set via App;

ADDITIONAL OPTIONS:
- Shade control;
- Sound masking
- CO2 Sensing and threshold warning
- Gateway for clock accuracy, remote assistance, energy and space utilization analytics, BMS integration, voice activated commands
- Emergency Lighting Control

LEGEND

- LINE VOLTAGE
- 0 - 10V
- LOW VOLTAGE
- TO MAIN POWER
- LUMINAIRE LIGHT
- DUAL TECH SENSOR
- KEYPAD SWITCH
- BLUETOOTH MESH
- DAYLIGHT SENSOR
- 5W TRANSFORMER

BILL OF MATERIAL

QTY	PRODUCT#	DESCRIPTION
1	S-OD-C24-D000	DUAL TECH SENSOR
1	S-DL-C12_DTWH	DAYLIGHT SENSOR
2	K-Q4-UDL-00WH	KEYPAD - Q SERIES - 4 BUTTONS WHITE
1	A-T05-12-17-DJ00	5W TRANSFORMER
	BY OTHERS:	
9	0-10V DOWNLIGHT	0-10V DIMMING

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CONFERENCE ROOM WITH 0-10V LUMINAIRES

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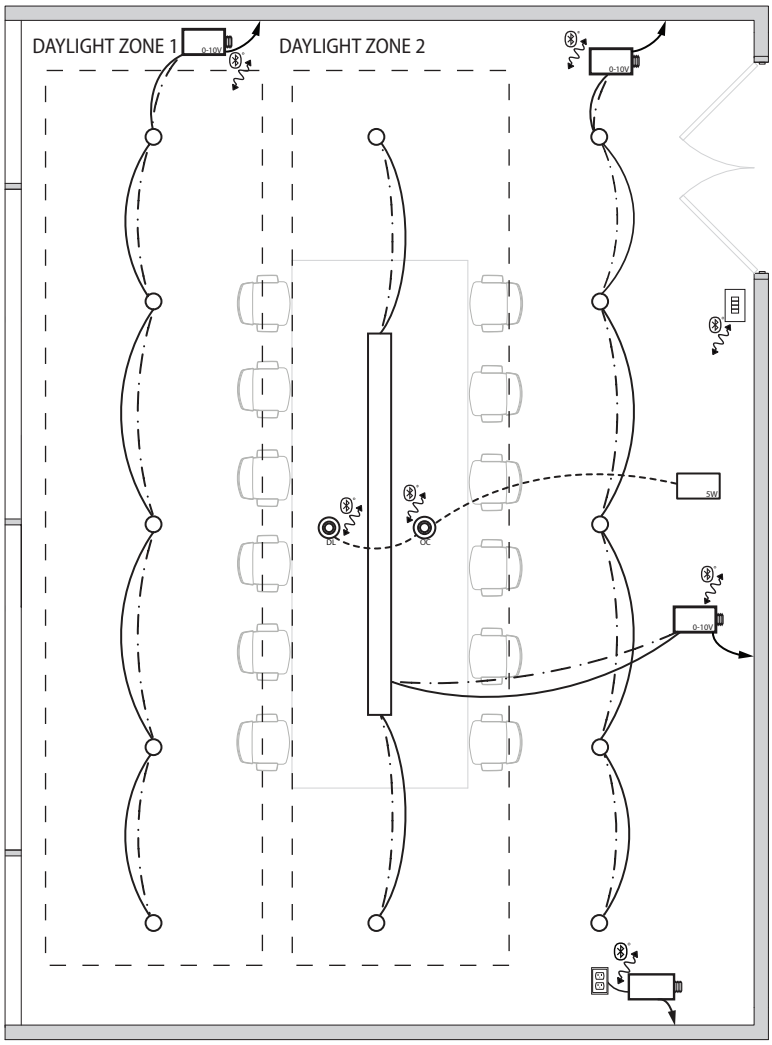

SEQUENCE OF OPERATION:

LIGHT FIXTURES:
- All fixtures are dimmable;
- Max. and Min. Trim can be set via App;

OCCUPANCY CONTROL:
- Fixtures automatically go to set brightness when space is occupied;
- Fixtures automatically turn off or low level when space is vacant;
- Occupancy or Vacancy mode;
- Brightness level for Occupied and Vacant state, delays and transitions can be set via App;

DAYLIGHT CONTROL:
- Smooth and continuous dimming;
- Delays, transitions and light harvesting sensitivity can be set via App;

PLUG LOAD CONTROL:
-Receptacle automatically turns ON/OFF with motion sensor and/or schedule

MANUAL CONTROL:
- ON/OFF, dim up and down, select scene

TIME SCHEDULE:
- Time, recurring day of the week schedules, yearly special day schedules can be set via App;

ADDITIONAL OPTIONS:
- Shade control;
- GPS Time-keeper for clock accuracy;
- Gateway for clock accuracy, remote assistance, energy and space utilization analytics, BMS integration, voice activated commands
- Emergency Lighting Control

LEGEND

- LINE VOLTAGE
- 0-10V
- LOW VOLTAGE
- TO MAIN POWER
- 0-10V DOWNLIGHT
- 0-10V LINEAR PENDANT
- OCCUPANCY SENSOR
- KEYPAD SWITCH
- BLUETOOTH MESH
- CONTROLLER
- 5W TRANSFORMER

BILL OF MATERIAL

QTY	PRODUCT#	DESCRIPTION
4	C-T20-17-DJ00	0-10V/PLUG LOAD CONTROLLER
1	S-OP-012-DTWH	OCCUPANCY SENSOR
1	S-DL-012-DTWH	DAYLIGHT SENSOR
1	K-Q4-UDL-00WH	KEYPAD - Q SERIES - 4 BUTTONS WHITE
1	A-T05-12-17-DJ00	5W TRANSFORMER
	BY OTHERS:	
12	0-10V DOWNLIGHT	0-10V DIMMING
1	0-10V LINEAR PENDANT	0-10V DIMMING

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CONFERENCE ROOM WITH BLUETOOTH MESH LUMINAIRES

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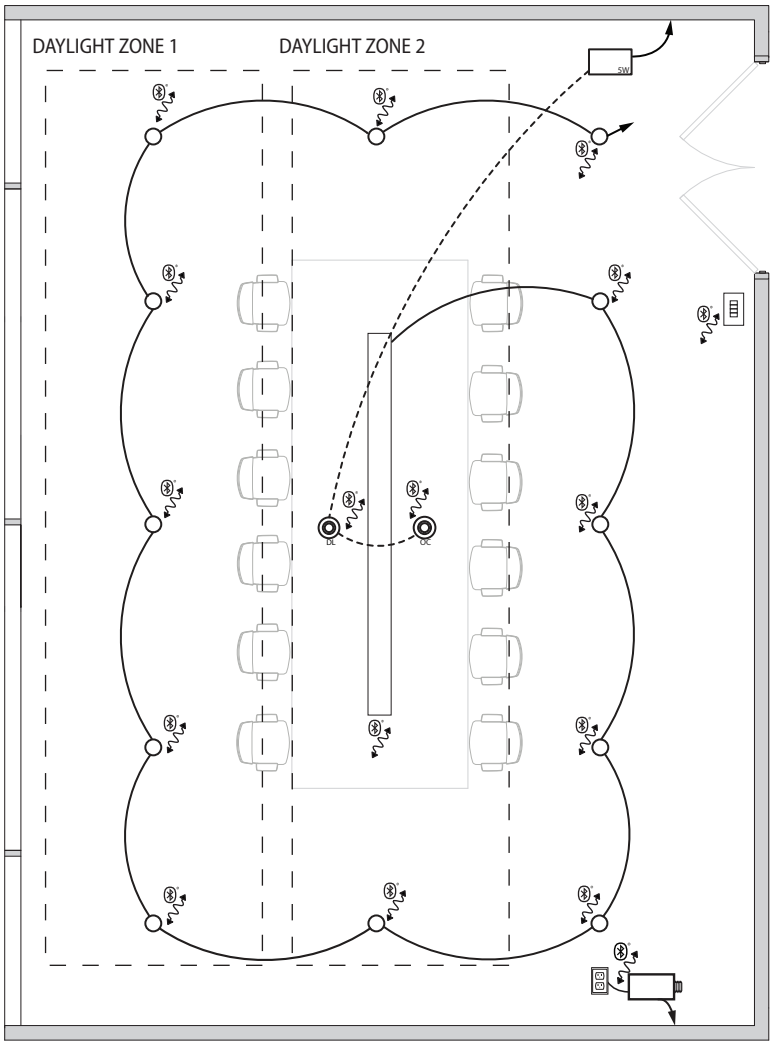

SEQUENCE OF OPERATION:

LIGHT FIXTURES:
- All fixtures are dimmable;
- Luminaires can be static white, warm dim, tunable white, RGBW;
- All fixtures are independently controlled or can be grouped together;
- Max. and Min. Trim can be set via App;

OCCUPANCY CONTROL:
- Fixtures automatically go to set brightness when space is occupied;
- Fixtures automatically turn off or low level when space is vacant;
- Occupancy or Vacancy mode;
- Brightness level for Occupied and Vacant state, delays and transitions can be set via App;

DAYLIGHT CONTROL:
- Smooth and continuous dimming;
- Separate daylight zones (can be as many as number of fixtures)
- Delays, transitions and light harvesting sensitivity can be set via App;

PLUG LOAD CONTROL:
-Receptacle automatically turns ON/OFF with motion sensor and/or schedule

MANUAL CONTROL:
- ON/OFF, dim up and down, select scene (up to 16 scenes per fixture)

TIME SCHEDULE:
- Time, recurring day of the week schedules, yearly special day schedules can be set via App;

ADDITIONAL OPTIONS:
- Shade control;
- GPS Time-keeper for clock accuracy;
- Gateway for clock accuracy, remote assistance, energy and space utilization analytics, BMS integration, voice activated commands
- Emergency Lighting Control

LEGEND

- LINE VOLTAGE
- LOW VOLTAGE
- TO MAIN POWER
- BLUETOOTH MESH DOWNLIGHT
- BLUETOOTH MESH LINEAR PENDANT
- OCCUPANCY SENSOR
- DAYLIGHT SENSOR
- 5W TRANSFORMER
- BLUETOOTH MESH
- PLUG LOAD CONTROLLER

BILL OF MATERIAL

QTY	PRODUCT#	DESCRIPTION
1	A-T05-12 -17-DS00	TRANSFORMER AC/DC 5W
1	S-OP-012-DTWH	OCCUPANCY SENSOR
1	S-DL-012-DTWH	DAYLIGHT SENSOR
1	C-T20-17-DJ00	PLUG LOAD CONTROLLER
1	K-Q4-UDL-00WH	KEYPAD - Q SERIES - 4 BUTTONS WHITE
	BY OTHERS:	
12	DOWNLIGHT	BLUETOOTH MESH LUMINAIRE
1	LINEAR PENDANT	BLUETOOTH MESH LUMINAIRE

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CORRIDOR WITH 0-10V LUMINAIRES

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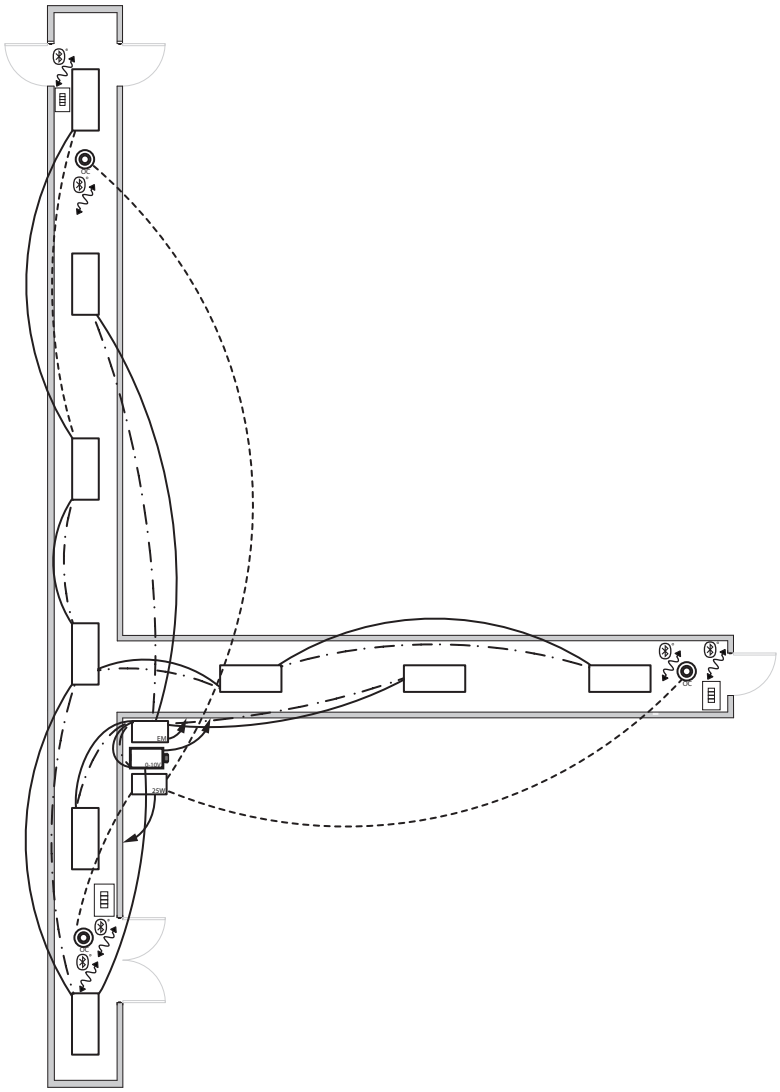

SEQUENCE OF OPERATION:

LIGHT FIXTURES:
- All fixtures are dimmable;
- Max. and Min. Trim can be set via App;

OCCUPANCY CONTROL:
- Fixtures automatically go to set brightness when space is occupied;
- Fixtures automatically turn off or low level when space is vacant;
- Occupancy or Vacancy mode;
- Brightness level for Occupied and Vacant state, delays and transitions can be set via App;

MANUAL CONTROL:
- ON/OFF, dim up and down, select scene;

TIME SCHEDULE:
- Time, recurring day of the week schedules, yearly special day schedules can be set via App;

ADDITIONAL OPTIONS:
- Shade control;
- GPS Time-keeper for clock accuracy;
- Gateway for clock accuracy, remote assistance, energy and space utilization analytics, BMS integration, voice activated commands
- Emergency Lighting Control

LEGEND

- LINE VOLTAGE
- 0-10V
- LOW VOLTAGE
- TO MAIN POWER
- LUMINAIRE LIGHT
- OCCUPANCY SENSOR
- KEYPAD SWITCH
- BLUETOOTH MESH
- CONTROLLER
- EMERGENCY PACK
- TRANSFORMER

BILL OF MATERIAL

QTY	PRODUCT#	DESCRIPTION
1	C-T20-17-DJ00	0-10V-CONTROLLER WITH RELAY
3	S-OP-012-DTWH	OCCUPANCY SENSOR
3	K-Q4-UDL-00WH	KEYPAD - Q SERIES - 4 BUTTONS WHITE
1	A-E20-00-17-DJR0	EMERGENCY PACK
	BY OTHERS:	
9	0-10V DOWNLIGHT	0-10V DIMMING

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LOBBY WITH 0-10V LUMINAIRES

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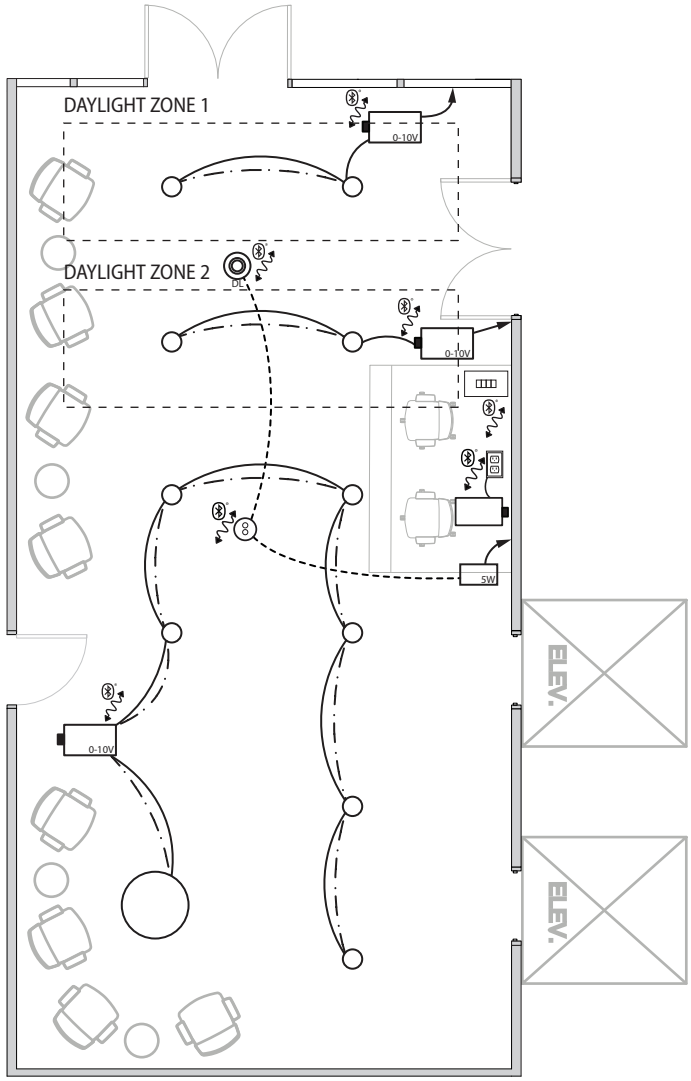

SEQUENCE OF OPERATION:

LIGHT FIXTURES:
- All fixtures are dimmable;
- Max. and Min. Trim can be set via App;

OCCUPANCY CONTROL:
- Fixtures automatically go to set brightness when space is occupied;
- Fixtures automatically turn off or low level when space is vacant;v
- Occupancy or Vacancy mode;
- Brightness level for Occupied and Vacant state, delays and transitions can be set via App;

DAYLIGHT CONTROL:
- Smooth and continuous dimming;
- Separate daylight zones (can be as many as number of fixtures)
- Delays, transitions and light harvesting sensitivity can be set via App;

PLUG LOAD CONTROL:
-Receptacle automatically turns ON/OFF with motion sensor and/or schedule

MANUAL CONTROL:
- ON/OFF, dim up and down, select scene

TIME SCHEDULE:
- Time, recurring day of the week schedules, yearly special day schedules can be set via App;

ADDITIONAL OPTIONS:
- Shade control;
- GPS Time-keeper for clock accuracy;
- Gateway for clock accuracy, remote assistance, energy and space utilization analytics, BMS integration, voice activated commands
- Emergency Lighting Control

LEGEND

- LINE VOLTAGE
- 0-10V
- LOW VOLTAGE
- TO MAIN POWER
- 0-10V DOWNLIGHT
- 0-10V DECORATIVE
- DAYLIGHT SENSOR
- DUAL TECH OCCUPANCY SENSOR
- KEYPAD SWITCH
- BLUETOOTH MESH
- CONTROLLER
- 5W TRANSFORMER

BILL OF MATERIAL

QTY	PRODUCT#	DESCRIPTION
4	C-T20-17-DJ00	0-10V / PLUG LOAD CONTROLLER
1	S-0D-C24-D000	DUAL TECH OCCUPANCY SENSOR
1	DL-012-DTWH	DAYLIGHT SENSOR
1	K-Q4-UDL-00WH	KEYPAD - Q SERIES - 4 BUTTONS WHITE
1	A-T05-12-17-DJ00	5W TRANSFORMER
	BY OTHERS:	
10	DOWNLIGHT	0-10V DIMMING
1	DECORATIVE LIGHT	0-10V DIMMING

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LOBBY WITH BLUETOOTH MESH LUMINAIRES

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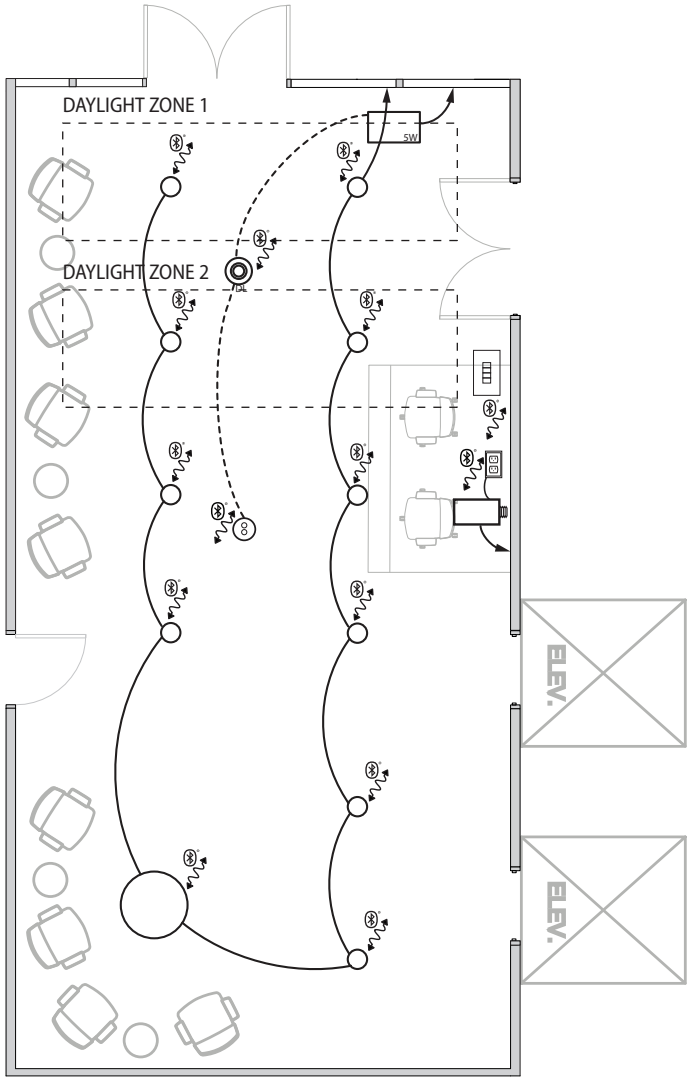

SEQUENCE OF OPERATION:

LIGHT FIXTURES:
- All fixtures are dimmable;
- Luminaires can be static white, warm dim, tunable white, RGBW;
- All fixtures are independently controlled or can be grouped together;
- Max. and Min. Trim can be set via App;

OCCUPANCY CONTROL:
- Fixtures automatically go to set brightness when space is occupied;
- Fixtures automatically turn off or low level when space is vacant;
- Occupancy or Vacancy mode;
- Brightness level for Occupied and Vacant state, delays and transitions can be set via App;

DAYLIGHT CONTROL:
- Smooth and continuous dimming;
- Separate daylight zones (can be as many as number of fixtures)
- Delays, transitions and light harvesting sensitivity can be set via App;

PLUG LOAD CONTROL:
-Receptacle automatically turns ON/OFF with motion sensor and/or schedule

MANUAL CONTROL:
- ON/OFF, dim up and down, select scene (up to 16 scenes per fixture)

TIME SCHEDULE:
- Time, recurring day of the week schedules, yearly special day schedules can be set via App;

ADDITIONAL OPTIONS:
- Shade control;
- GPS Time-keeper for clock accuracy;
- Gateway for clock accuracy, remote assistance, energy and space utilization analytics, BMS integration, voice activated commands
- Emergency Lighting Control

LEGEND

- LINE VOLTAGE
- LOW VOLTAGE
- TO MAIN POWER
- BLUETOOTH MESH DOWNLIGHT
- BLUETOOTH MESH DECORATIVE LIGHT
- DUAL TECH OCCUPANCY SENSOR
- DAYLIGHT SENSOR
- 5W TRANSFORMER
- BLUETOOTH MESH
- PLUG LOAD CONTROLLER

BILL OF MATERIAL

QTY	PRODUCT#	DESCRIPTION
1	S-0D-C24-D000	DUAL TECH OCCUPANCY SENSOR
1	S-DL-012-DTWH	DAYLIGHT SENSOR
1	A-T05-12-17-DJ00	TRANSFORMER AC/DC 5W
1	C-T20-17-DJ00	PLUG LOAD CONTROLLER
	BY OTHERS:	
10	DOWNLIGHT	BLUETOOTH MESH LUMINAIRE
1	DECORATIVE LIGHT	BLUETOOTH MESH LUMINAIRE

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OPEN OFFICE WITH 0-10V LUMINAIRES

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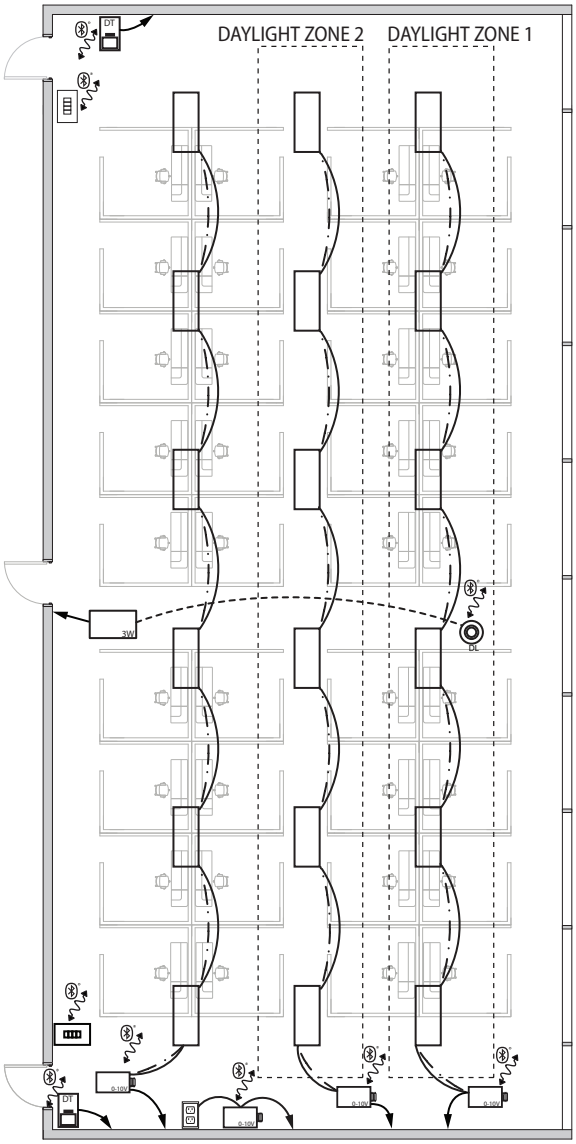

SEQUENCE OF OPERATION:

LIGHT FIXTURES:
- All fixtures are dimmable;
- Max. and Min. Trim can be set via App;

OCCUPANCY CONTROL:
- Fixtures automatically go to set brightness when space is occupied;
- Fixtures automatically turn off or low level when space is vacant;
- Occupancy or Vacancy mode;
- Brightness level for Occupied and Vacant state, delays and transitions can be set via App;

DAYLIGHT CONTROL:
- 2 Daylight Zones;
- Smooth and continuous dimming;
- Delays, transitions and light harvesting sensitivity can be set via App;

PLUG LOAD CONTROL:
-Receptacle automatically turns ON/OFF with motion sensor and/or schedule

MANUAL CONTROL:
- ON/OFF, dim up and down, select scene

TIME SCHEDULE:
- Time, recurring day of the week schedules, yearly special day schedules can be set via App;

ADDITIONAL OPTIONS:
- Shade control;
- GPS Time-keeper for clock accuracy;
- Gateway for clock accuracy, remote assistance, energy and space utilization analytics, BMS integration, voice activated commands
- Emergency Lighting Control

LEGEND

- LINE VOLTAGE
- 0-10V
- LOW VOLTAGE
- TO MAIN POWER
- LUMINAIRE LIGHT
- DUAL TECH WALL SENSOR
- KEYPAD SWITCH
- BLUETOOTH MESH
- CONTROLLER
- 3W TRANSFORMER

BILL OF MATERIAL

QTY	PRODUCT#	DESCRIPTION
4	C-T20-17-DJ00	LOAD CONTROLLER (0-10 OR PLUG LOAD)
2	S-OC-017-D00W	DUAL TECH WALL
1	S-DL-012-DTWH	DAYLIGHT SENSOR
2	K-Q4-UDL-00WH	KEYPAD - Q SERIES - 4 BUTTONS WHITE
1	A-T03-12-17-DJ00	3W TRANSFORMER
	BY OTHERS:	
18	0-10V DOWNLIGHT	0-10V DIMMING
1	0-10V LINEAR PENDANT	0-10V DIMMING

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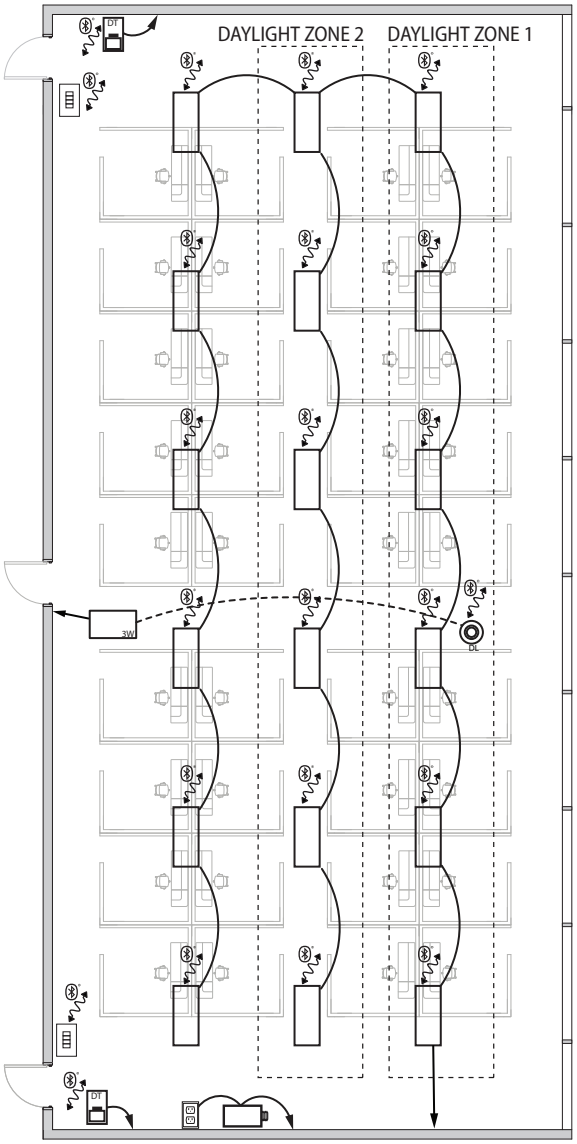
OPEN OFFICE WITH BLUETOOTH MESH LUMINAIRES

BubblyNet
human-centric building control



SEQUENCE OF OPERATION:

LIGHT FIXTURES:
- All fixtures are dimmable;
- Luminaires can be static white, warm dim, tunable white, RGBW;
- All fixtures are independently controlled or can be grouped together;
- Max. and Min. Trim can be set via App;

OCCUPANCY CONTROL:
- Fixtures automatically go to set brightness when space is occupied;
- Fixtures automatically turn off or low level when space is vacant;
- Occupancy or Vacancy mode;
- Brightness level for Occupied and Vacant state, delays and transitions can be set via App;

DAYLIGHT CONTROL:
- Smooth and continuous dimming;
- Separate daylight zones (can be as many as number of fixtures)
- Delays, transitions and light harvesting sensitivity can be set via App;

PLUG LOAD CONTROL:
-Receptacle automatically turns ON/OFF with motion sensor and/or schedule

MANUAL CONTROL:
- ON/OFF, dim up and down, select scene (up to 16 scenes per fixture)

TIME SCHEDULE:
- Time, recurring day of the week schedules, yearly special day schedules can be set via App;

ADDITIONAL OPTIONS:
- Shade control;
- GPS Time-keeper for clock accuracy;
- Gateway for clock accuracy, remote assistance, energy and space utilization analytics, BMS integration, voice activated commands
- Emergency Lighting Control

LEGEND

- LINE VOLTAGE
- LOW VOLTAGE
- TO MAIN POWER
- LUMINAIRE LIGHT
- DUAL TECH WALL SENSOR
- KEYPAD SWITCH
- BLUETOOTH MESH
- TRANSFORMER
- PLUG LOAD CONTROLLER

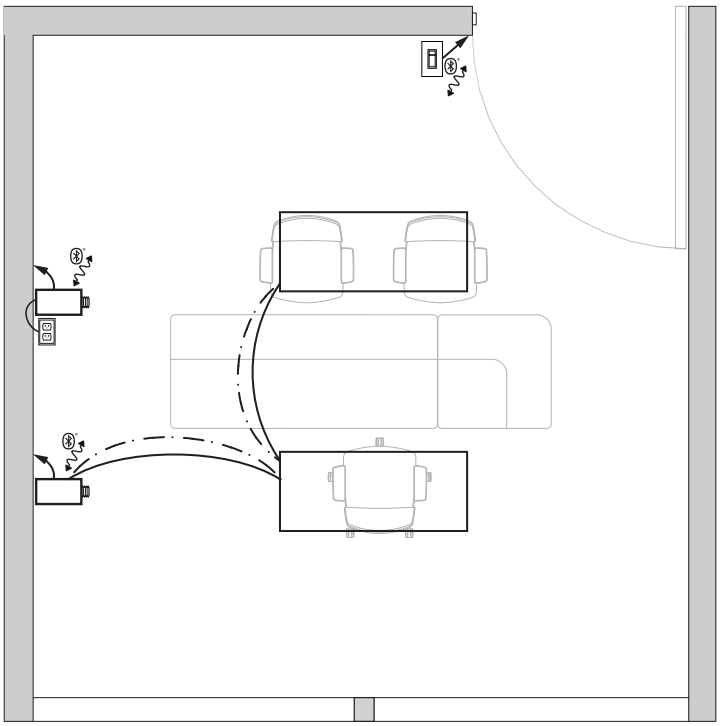
BILL OF MATERIAL

QTY	PRODUCT#	DESCRIPTION
1	A-TO3-12-17-DS00	TRANSFORMER AC/DC 3W
2	S-OC-017-D00W	DUAL TECH WALL SENSOR
1	S-DL-012-DTWH	DAYLIGHT SENSOR
1	C-T20-17-DJ00	PLUG LOAD CONTROLLER
2	K-Q4-UDL-00WH	KEYPAD - Q SERIES - 4 BUTTONS WHITE
	BY OTHERS:	
18	DOWNLIGHT	BLUETOOTH MESH LUMINAIRE

DESIGN GUIDE - Title 24

PRIVATE OFFICE <250 SQ. FT. WITH 0-10V LUMINAIRES

BubblyNet
human-centric building control



SEQUENCE OF OPERATION:

LIGHT FIXTURES:
- All fixtures are dimmable;
- Luminaires can be static white, warm dim, tunable white, RGBW;
- All fixtures are independently controlled or can be grouped together;
- Max. and Min. Trim can be set via App;

OCCUPANCY CONTROL:
- Fixtures automatically go to set brightness when space is occupied;
- Plug Load automatically turns on;
- Fixtures and Plug Load automatically turn off when space is vacant;
- Brightness level for Occupied and Vacant state, delays and transitions can be set via App;

DAYLIGHT CONTROL:
- Not required for lighting load <120W

PLUG LOAD CONTROL:
-Receptacle automatically turns ON/OFF with motion sensor and/or schedule

MANUAL CONTROL:
- ON/OFF, dim up and down, select scene (up to 16 scenes per fixture);

INCLUDED FUNCTIONALITIES
- Timeclock and scheduling functions are included (but not required by the standard);

ADDITIONAL OPTIONS:
- Shade control;
- GPS Time-keeper for clock accuracy;
- Gateway for clock accuracy, remote assistance, energy and space utilization analytics, BMS integration, voice activated commands
- Emergency Lighting Control

LEGEND

- LINE VOLTAGE
- 0-10 V
- TO MAIN POWER
- LUMINAIRE
- OUTLET
- KEYPAD + OCCUPANCY SENSOR
- KEYPAD SWITCH
- BLUETOOTH MESH
- LOAD CONTROLLER

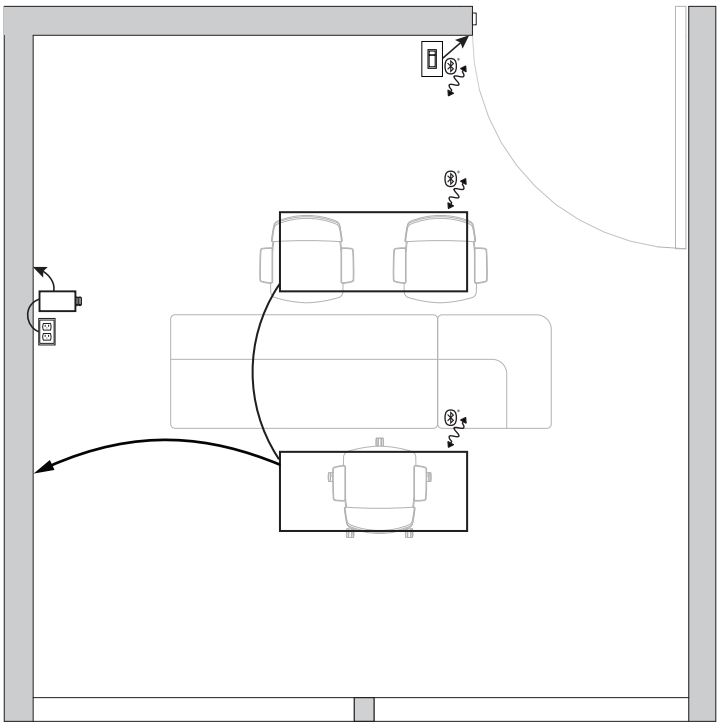
BILL OF MATERIAL

QTY	PRODUCT#	DESCRIPTION
2	C-T20-17-DJ00	0-10V/PLUG LOAD CONTROLLER
1	K-C3-UDS	KEYPAD + OCCUPANCY SENSOR
	BY OTHERS:	
2	DOWNLIGHT	BLUETOOTH MESH LUMINAIRE

DESIGN GUIDE - Title 24

PRIVATE OFFICE <250 SQ. FT. BLUETOOTH MESH LUMINAIRES

BubblyNet
human-centric building control



SEQUENCE OF OPERATION:

LIGHT FIXTURES:
- All fixtures are dimmable;
- Luminaires can be static white, warm dim, tunable white, RGBW;
- All fixtures are independently controlled or can be grouped together;
- Max. and Min. Trim can be set via App;

OCCUPANCY CONTROL:
- Fixtures automatically go to set brightness when space is occupied;
- Plug Load automatically turns on;
- Fixtures and Plug Load automatically turn off when space is vacant;
- Brightness level for Occupied and Vacant state, delays and transitions can be set via App;

DAYLIGHT CONTROL:
- Not required for lighting load <120W

PLUG LOAD CONTROL:
-Receptacle automatically turns ON/OFF with motion sensor and/or schedule

MANUAL CONTROL:
- ON/OFF, dim up and down, select scene (up to 16 scenes per fixture);

INCLUDED FUNCTIONALITIES
- Timeclock and scheduling functions are included (but not required by the standard);

ADDITIONAL OPTIONS:
- Shade control;
- GPS Time-keeper for clock accuracy;
- Gateway for clock accuracy, remote assistance, energy and space utilization analytics, BMS integration, voice activated commands
- Emergency Lighting Control

LEGEND

- LINE VOLTAGE
- TO MAIN POWER
- LUMINAIRE
- OUTLET
- KEYPAD + OCCUPANCY SENSOR
- KEYPAD SWITCH
- BLUETOOTH MESH
- LOAD CONTROLLER

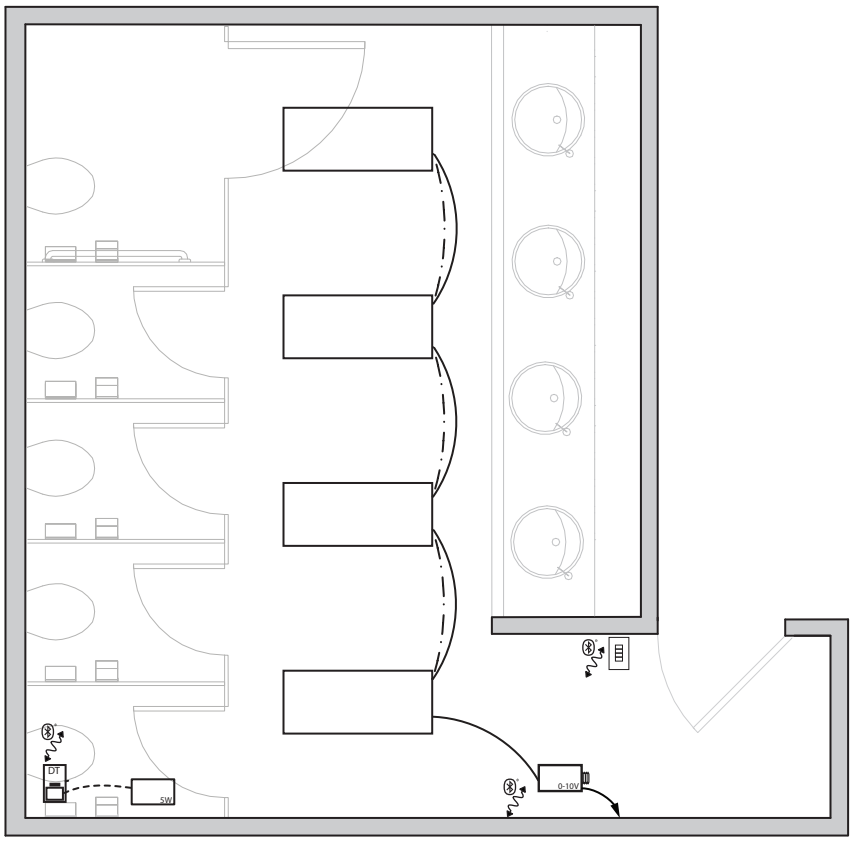
BILL OF MATERIAL

QTY	PRODUCT#	DESCRIPTION
1	C-T20-17-DJ00	LOAD CONTROLLER
1	K-C3-UDS	KEYPAD + OCCUPANCY SENSOR
	BY OTHERS:	
2	DOWNLIGHT	BLUETOOTH MESH LUMINAIRE

DESIGN GUIDE - Title 24

PUBLIC RESTROOM WITH 0-10V LUMINAIRES

BubblyNet
human-centric building control



SEQUENCE OF OPERATION:

LIGHT FIXTURES:
- All fixtures are dimmable;
- Max. and Min. Trim can be set via App;

OCCUPANCY CONTROL:
- Fixtures automatically go to set brightness when space is occupied;
- Fixtures automatically turn off or low level when space is vacant;
- Occupancy or Vacancy mode;
- Brightness level for Occupied and Vacant state, delays and transitions can be set via App;

MANUAL CONTROL:
- ON/OFF, dim up and down, select scene

TIME SCHEDULE:
- Time, recurring day of the week schedules, yearly special day schedules can be set via App;

ADDITIONAL OPTIONS:
- Shade control;
- GPS Time-keeper for clock accuracy;
- Gateway for clock accuracy, remote assistance, energy and space utilization analytics, BMS integration, voice activated commands
- Emergency Lighting Control

LEGEND

- LINE VOLTAGE
- 0-10V
- LOW VOLTAGE
- TO MAIN POWER
- LUMINAIRE
- DUAL TECH WALL SENSOR
- KEYPAD SWITCH
- BLUETOOTH MESH
- CONTROLLER
- 5W TRANSFORMER

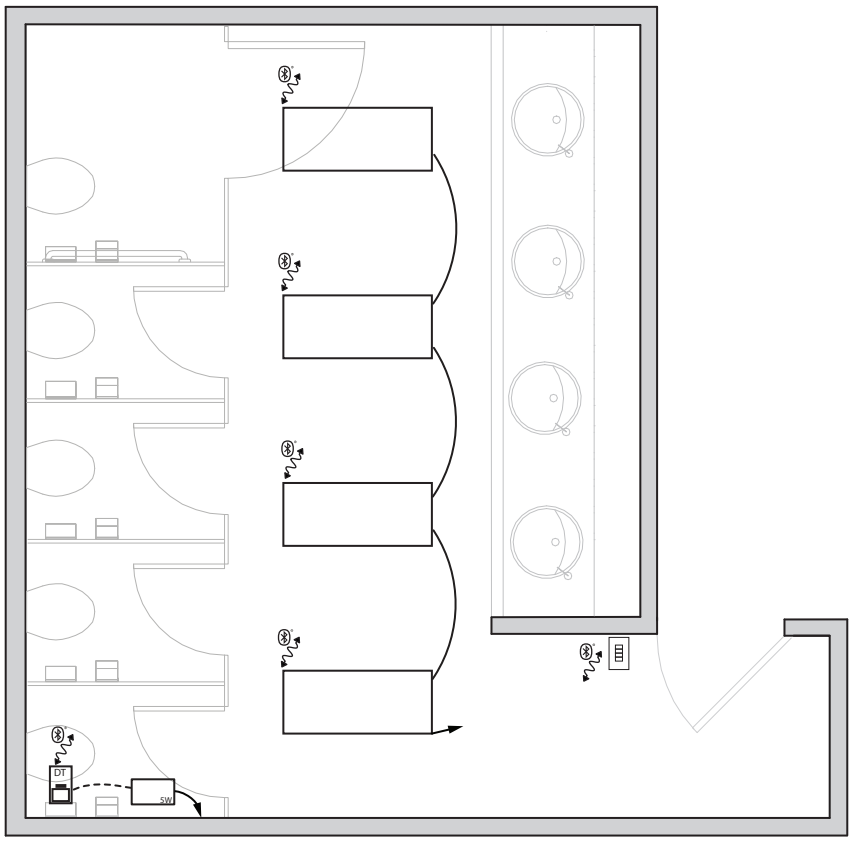
BILL OF MATERIAL

QTY	PRODUCT#	DESCRIPTION
1	G-T20-17-DJ00	0-10V-CONTROLLER
1	S-OC-024-D00W	DUAL TECH WALL SENSOR
1	K-Q4-UDL-00WH	KEYPAD - Q SERIES - 4 BUTTONS WHITE
1	A-T05-12-17-DJ00	5W TRANSFORMER
	BY OTHERS:	
4	LUMINAIRE	0-10V DIMMING

DESIGN GUIDE - Title 24

PUBLIC RESTROOM WITH BLUETOOTH MESH LUMINAIRES

BubblyNet
human-centric building control



SEQUENCE OF OPERATION:

LIGHT FIXTURES:
- Luminaires are dimmable;
- Luminaires can be static white, warm dim, tunable white, RGBW;
- All fixtures are independently controlled or can be grouped together;
- Max. and Min. Trim can be set via App;

OCCUPANCY CONTROL:
- Fixtures automatically go to set brightness when space is occupied;
- Fixtures automatically turn off or low level when space is vacant;
- Occupancy or Vacancy mode;
- Brightness level for Occupied and Vacant state, delays and transitions can be set via App;

DAYLIGHT CONTROL:
- Smooth and continuous dimming;
- Separate daylight zones (can be as many as number of fixtures)
- Delays, transitions and light harvesting sensitivity can be set via App;

MANUAL CONTROL:
- ON/OFF, dim up and down, select scene (up to 16 scenes per fixture)

TIME SCHEDULE:
- Time, recurring day of the week schedules, yearly special day schedules can be set via App;

ADDITIONAL OPTIONS:
- Shade control;
- GPS Time-keeper for clock accuracy;
- Gateway for clock accuracy, remote assistance, energy and space utilization analytics, BMS integration, voice activated commands
- Emergency Lighting Control

LEGEND

———	LINE VOLTAGE
- - - - - - - -	LOW VOLTAGE
→	TO MAIN POWER
▭	BLUETOOTH MESH LUMINAIRE
DT	DUALL TECH WALL SENSOR
	BLUETOOTH MESH
SW	5W TRANSFORMER

BILL OF MATERIAL

QTY	PRODUCT#	DESCRIPTION
1	S-OC-024-D00W	DUAL TECH WALL SENSOR
1	K-Q4-UDL-00WH	KEYPAD - Q SERIES - 4 BUTTONS WHITE
1	A-T05-12-17-DJ00	5W TRANSFORMER
	BY OTHERS:	
4	LUMINAIRE	BLUETOOTH MESH LUMINAIRE