

COMMERCIAL LIGHTING CONTROLS

IECC 2018

Design to meet code compliance with Lutron

USD List prices effective July 10, 2022



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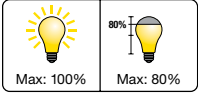
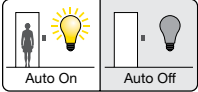


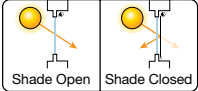

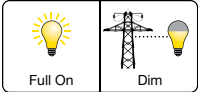
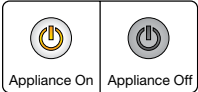

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This document summarizes the lighting and receptacle control requirements for commercial buildings. It is for information purposes only. It is not meant to replace your state’s or local jurisdiction’s official energy code. Please refer to your local building energy code or authority having jurisdiction for your precise requirements. Only the authority having jurisdiction can guarantee code compliance.



Energy-saving lighting control strategies

Strategy		Potential savings
	High-end trim/tuning sets the maximum light level based on customer requirements in each space.*	10–30% Lighting
	Occupancy/vacancy sensing turns lights on when occupants are in a space and off when they vacate the space.*	20–60% Lighting
	Daylight harvesting dims electric lights when daylight is available to light the space.*	25–60% Lighting
	Personal dimming control gives occupants the ability to set the light level.*	10–20% Lighting
	Controllable window shading moves shades to reduce glare and solar heat gain.*	10–20% Cooling
	Scheduling provides scheduled changes in light levels based on the time of day.*	10–20% Lighting
	Demand response automatically reduces lighting loads during peak electricity usage times.*	30–50% During peak period
	Plug load control automatically turns off loads after occupants leave a space.*	15–50% of Controlled loads
	HVAC integration controls heating, ventilation, and air conditioning systems through a contact closure.*	5–15% HVAC

*Go to lutron.com/references for more information

Codes can sometimes be complicated and difficult to navigate. This commercial application guide provides examples of how Lutron products can be used to meet or exceed code requirements. This guide focuses on Vive and Vive compatible solutions, but our other control systems offer similar features.

Lutron Product Capabilities: Commercial Applications

				
	Local Solutions			Outdoor/Parking Garage solutions
	Wallbox	Vive	Vive with wireless hub*	Limelight
Strategies for code/standards compliance	Occupancy sensing	●	●	●
	Multi-level lighting control	●	●	●
	Daylight harvesting		●	●
	Receptacle control		●	
	Timeclock		●	●
	Demand response		● †	
	Energy monitoring		●	●
	BACnet integration		●	

To learn more about these products and their specifications, go to lutron.com/catalogs.

* For the latest information on products compatible with the Vive wireless hub go to lutron.com/vive.
† Automated Demand Response capability requires signal from a third-party device.

Code requirement summary

Minimum control type		Description	Code provision
Manual Control ¹	Switch	Lighting shall be capable of turning ON and OFF. There shall be at least one manual device for control of the lighting within a space. See code for spaces that allow remote location of control.	C405.2.5
	Dimmer or scene control	Lighting shall be capable of being reduced by at least 50% of maximum lighting power. There shall be at least one manual control device for light reduction within a space. See code for spaces that allow remote location of control. Automatic daylight control may be used instead of manual control.	C405.2.2.2
Automatic ON/OFF Control ¹	Timeclock	Interior: Scheduled control, based on time-of-day, turns lighting ON or OFF based on typical occupancy. Occupancy sensors also comply as an alternate to using a timeclock. Exterior: Scheduled control, based on time-of-day and sunrise/sunset (requires astronomical timeclock), turns lighting ON or OFF based on typical occupancy and daylight.	C405.2.6.2 C405.2.6.3 C405.2.6.4
	Occupancy sensor	Automatic control turns lighting ON upon occupancy or OFF after a vacancy of 20 minutes or less.	C405.2.1
	Settings	Full ON	C405.2.1.1 Exception
		Partial ON	C405.2.1
		Manual ON	C405.2.1.1
		Full OFF	C405.2.1
		Partial OFF	C405.2, Exception C405.2.6.3
Other ¹	Daylight responsive control	Interior: A sensor which adjusts lighting in response to available daylight is required for sidelight and skylight zones. Some spaces, including offices and classrooms require dimming. See the “Daylight Zone Requirements” diagrams for more information. Exterior: A photosensor can be used as an alternate to the dawn/dusk peration of an astronomical timeclock.	C405.2.3 C405.2.6.1
	Receptacle control	Receptacle control is not required by this energy code.	N/A
	Demand response	Demand response is not required by this energy code.	N/A

For areas being used as a path of egress or fixtures being used for emergency, verify compliance with your local authority having jurisdiction. Acceptance (functional) testing is required for all new construction applications to ensure that control hardware and software are calibrated, programmed and functioning properly (Code provision C408.3).

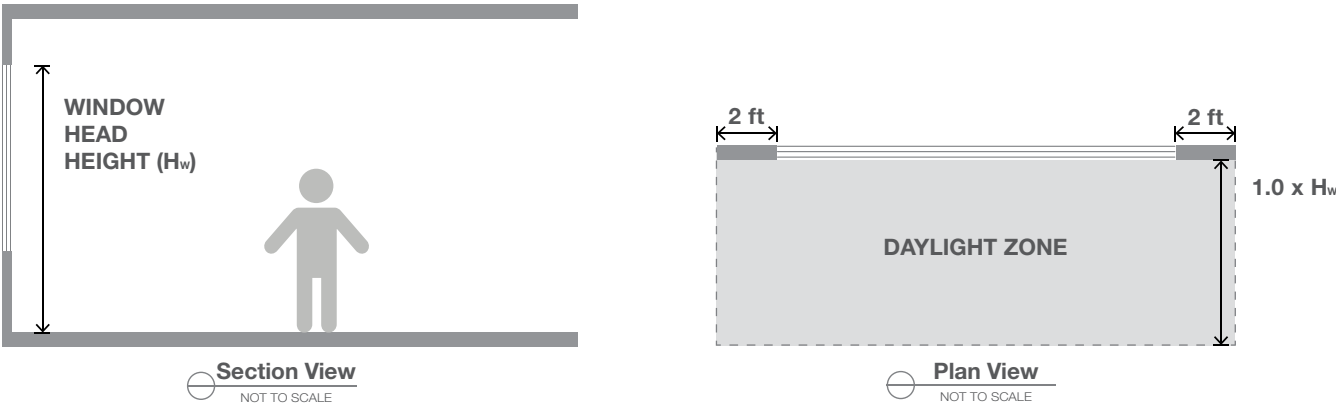
Enhanced Digital Lighting Controls is one compliance path of the Additional Efficiency Package requirement (Section C406).

¹ Luminaire level lighting controls (LLLC) can be can be used as an alternate compliance path. See Section C405.2 for more information.

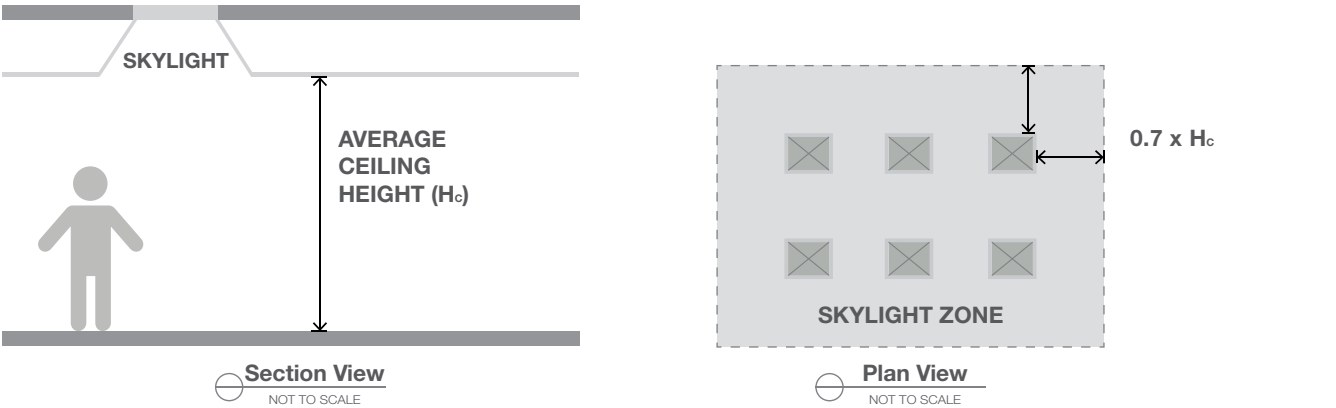
Daylight Zone Requirements:
Sidelighted daylight zones must be controlled separately from toplighted zones. North, South, East, and West zones must also be controlled separately.

Daylight Exceptions:
Daylight control is not required when the total lighting power of a daylight zone is 150W or less, or when the total glazing area is 24 sq. ft. or less. Other exceptions exist, based on space type, window area, neighboring obstructions, and glass transmittance.

Sidelighting (Window)



Toplighting (Skylight)



Suggested Code Compliant Solutions

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The compliant solutions listed below are suggested based on total installed cost, simplicity of design, and basic functional needs for the space. These solutions represent one of multiple compliant options to meet lighting and receptacle control requirements. ASHRAE 90.1 2016 can also be used as a compliance option in meeting IECC 2018 requirements. Applications in this guide will illustrate these solutions and/or alternate solutions for advanced functionality.

		Atrium	Classroom, Lecture Hall, Training Room	Conference, Break Room	Corridor ²	Guestroom ³	Lobby
Manual Control	Switch		⚙	⚙		⚙	
	Dimmer or scene control	⚙			⚙		⚙
Automatic ON/OFF Control	Timeclock	⚙					
	Occupancy sensor		⚙	⚙	⚙	⚙	⚙
	Settings						
Other	Daylight responsive control	⚙	⚙ ⁸	⚙	⚙		⚙
	Receptacle control						
	Demand response						

1 All retrofits altering more than 10% of the luminaires, or retrofits that increase the installed lighting power must comply with all new construction requirements.

2 To comply with some life safety code requirements for egress illumination, automatic full OFF is not suggested. For non-egress areas, the occupancy sensor should turn the lights to full OFF and a switching control may be used.

3 Automatic shutoff is required for all installed luminaires and switched receptacles.

4 Timeclock ensures the lights are on when typically occupied. Occupancy sensor controls lights when typically unoccupied.

Suggested Code Compliant Solutions

IECC 2018

Diagram key:

⦿ = New construction

⚙ = Lighting retrofit¹

⚙ = New construction and retrofit¹

Open Office (>300 sq. ft.)	Parking Garage ⁴	Private Office (<300 sq. ft.)	Restroom	Stairwell ²	Storage Room	Facade/ Landscape	Parking Lot/ Other Exterior ⁵
		⚙	⚙		⚙		
⚙				⚙			
	⚙					⚙	⚙
⚙	⚙	⚙	⚙	⚙	⚙		
	⚙		⚙	⚙		⚙	⚙
⚙	⚙					⚙	⚙
		⚙			⚙		
⚙	⚙	⚙	⚙		⚙	⚙	⚙
⚙ ⁶	⚙			⚙ ⁷		⚙	⚙
⚙ ⁸	⚙	⚙ ⁸	⚙	⚙	⚙	⚙	⚙

5 Astronomical timeclock shall ensure all lights are off during daylight hours. Lights should be scheduled to Partial OFF during night hours. See section C405.2.6.3 for scheduling times.

6 Control zones are limited to 600 sq. ft. or less. Once a zone is vacant for 20 minutes, the occupancy sensor automatically reduces lighting in the zone by 80% of full light output or turns lighting OFF in the vacant zone.

7 Not a code requirement. Lutron recommends this solution for spaces designated as a path of egress.

8 These spaces require continuous daylight dimming to OFF.

9 Sensor(s) automatically turns lighting OFF in the entire space within 20 minutes of vacancy in the whole space.

This application guide is designed to help specifiers and contractors understand codes and Lutron controls in a simple manner. Each of the pages will lay out different spaces, the corresponding lighting control products for those spaces, and the way the system is set up in the space.

For Specifiers

Use this application guide for design suggestions, to understand the way the system operates and to specify the relevant products for each space.

For Contractors

Use this application guide to understand how the system is installed, the way the system must operate, and to order the correct products for each application.

Room type Type of solution

Classroom | Recommended
IECC 2018

Line-voltage wiring
Clear Connect RF Communication
1 Integrated into each light fixture

Symbol	Model Number	Description	Qty	List Price Each
	Integral to fixture ¹	Integral fixture control with sensor	12	\$ 78.00 ²
	PJ2-4B-GWH-LS1	Pico wireless 4-button scene control	1	\$ 45.00
	PJ2-3BRL-GWH-LS1	Pico wireless 3-button with raise/lower control	2	\$ 27.00
	PICO-WBX-ADAPT	Pico wallbox adapter	3	\$ 9.50

1. Fixture control comes pre-installed in fixture. Look for the Clear Connect Wireless symbol for fixtures containing this module. Go to lutron.com/fixture for a complete list of compatible fixtures and drivers.
2. Fixture add-on for the control module may vary.

Want to add a Vive wireless hub for more features? Go to lutron.com/vive for complete compatibility and design details. This solution requires digitally installed ballasts and drivers by others. This solution meets the requirements of the Luminaire Level Lighting Controls (LLLC) prescriptive path specified in section C405.2.2. This solution meets the requirements of the Enhanced Digital Lighting Controls Additional Efficiency Package (Section C406).

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This guide offers up to three solutions per space type.

- The **Retrofit Solutions** are simple and inexpensive solutions, generally suited for a basic retrofit.
- The **New Construction Solutions** are value driven, generally best suited for new construction.
- The **Recommended Solutions** have advanced functionality for greater comfort and energy savings.

Classroom | Recommended
IECC 2018

Visible System Components

Pico wireless control
Pico wireless 4-button scene control
Integral fixture control with sensor

Control Functionality

Occupant Enters:
All lights automatically turn on to 50% light level. Occupant turns on lights to maximum level manually. Maximum light level is set to 80%.

When Occupied:
Automatic: Overhead lights dim/brighten based on daylight availability. There are two perimeter daylight zones.
Manual: Occupant selects scenes or uses dimmers to set desired light levels for all lights. Entry scene controller has 3 user preferred presets and 1 all off button.

Occupant Exits:
All lights automatically turn off 15 minutes after all occupants exit.

Add a Vive wireless hub to enable simple setup and zoning, system monitoring, timeclock functionality, and advanced integration.

Control Strategies

Occupancy/Vacancy
Daylight Harvesting
Personal Dimming
High-end Trim/Tuning
Scene Control

Lighting Energy Savings*
65%
* Go to lutron.com/energy for more information.

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Understand how the products are laid out in the space

Learn more about the products used in the space

Type of solution






Learn about the products visible in the space and the different options available for these.

Learn what strategies are implemented in the space

Learn what energy savings you achieve over manual shut-off

Understand how the space functions with the installed system

This is a high-level overview of the local solutions layout. For individual room requirements refer to the detailed room type solutions in this guide. A single PowPak module can control a single or multiple fixtures. The products shown here are representative of local solutions. Multiple product options are available to meet the needs of the space.

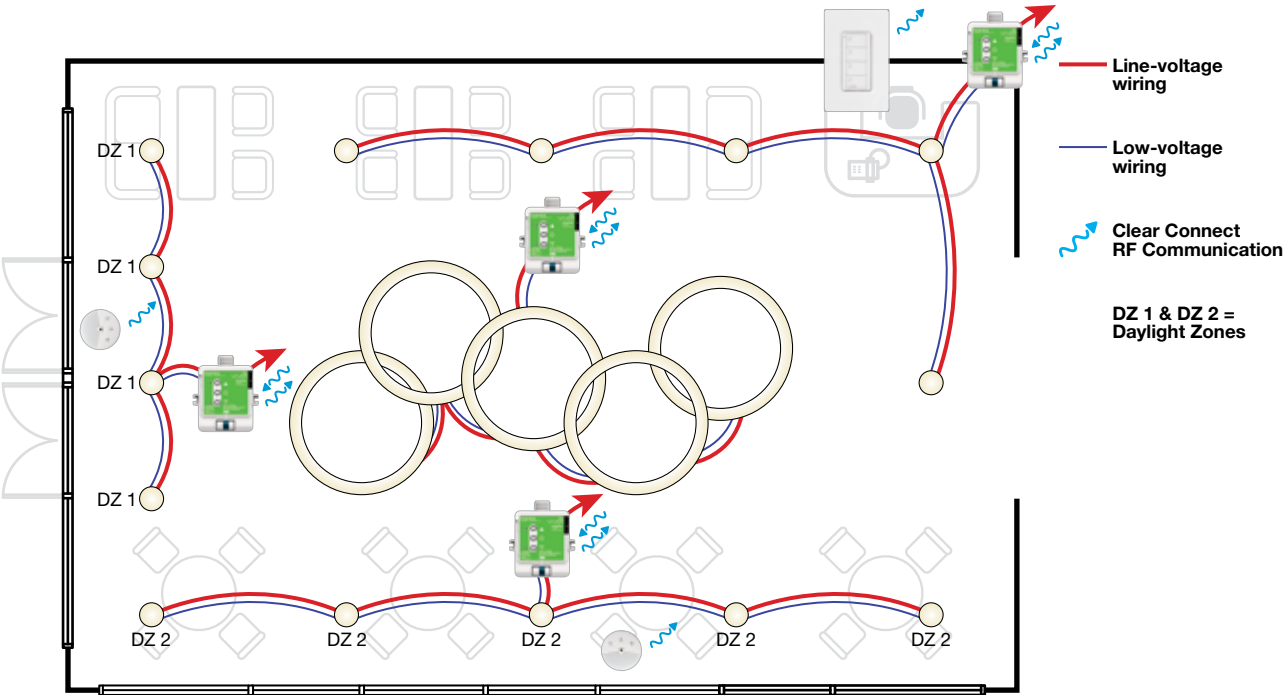
-  Vive wireless hub*
-  PowPak module
-  Occupancy sensor
-  Pico wireless remote control
-  Daylight sensor





Vive wireless hub features:

- Central control, management, and monitoring of Vive devices via web browser
- Supports astronomic and time-of-day events
- Two contact closure inputs for third-party integration such as Automatic Demand Response
- Wi-Fi access for easy commissioning
- Control up to 10,000 sq. ft. with a single hub
- Optional BACnet integration

* Go to lutron.com/vive for complete compatibility and design details.





Symbol	Model Number	Description	Qty	List Price Each
	RMJS-8T-DV-B	PowPak dimming module with 0-10V	4	\$ 180.00
	LRF2-DCRB-WH	Radio Powr Savr wireless daylight sensor	2	\$ 150.00
	PJ2-4B-GWH-L31	Pico wireless 4-button scene control	1	\$ 45.00
	PICO-WBX-ADAPT	Pico wallbox adapter	1	\$ 9.50
	HJS-1-FM	Vive wireless hub	Shared	Consult your local rep for hub pricing and service options.

Code Notes: Requirements specified for 20-40 ft. atriums.
Go to lutron.com/vive for complete compatibility and design details.
This solution requires 0-10V enabled ballasts and drivers by others.

Visible System Components



Pico wireless 4-button scene control



Radio Powr Savr wireless daylight sensor

Control Functionality

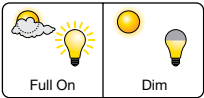
When Occupied:
Automatic: Overhead lights dim/brighten based on daylight availability. There are two perimeter daylight zones.

Manual: Occupant selects scenes or uses dimmers to set desired light levels for all lights. Entry scene controller has 3 user preferred presets and 1 all off button.

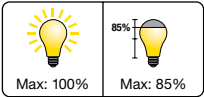
Timeclock:
Timeclock turns lights on to 50% light level during normally occupied hours. Maximum light level is set to 80%.

Timeclock turns lights off during normally unoccupied hours.

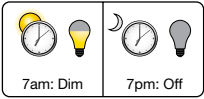
Control Strategies



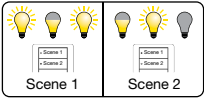
Daylight Harvesting



High-end Trim/Tuning



Scheduling

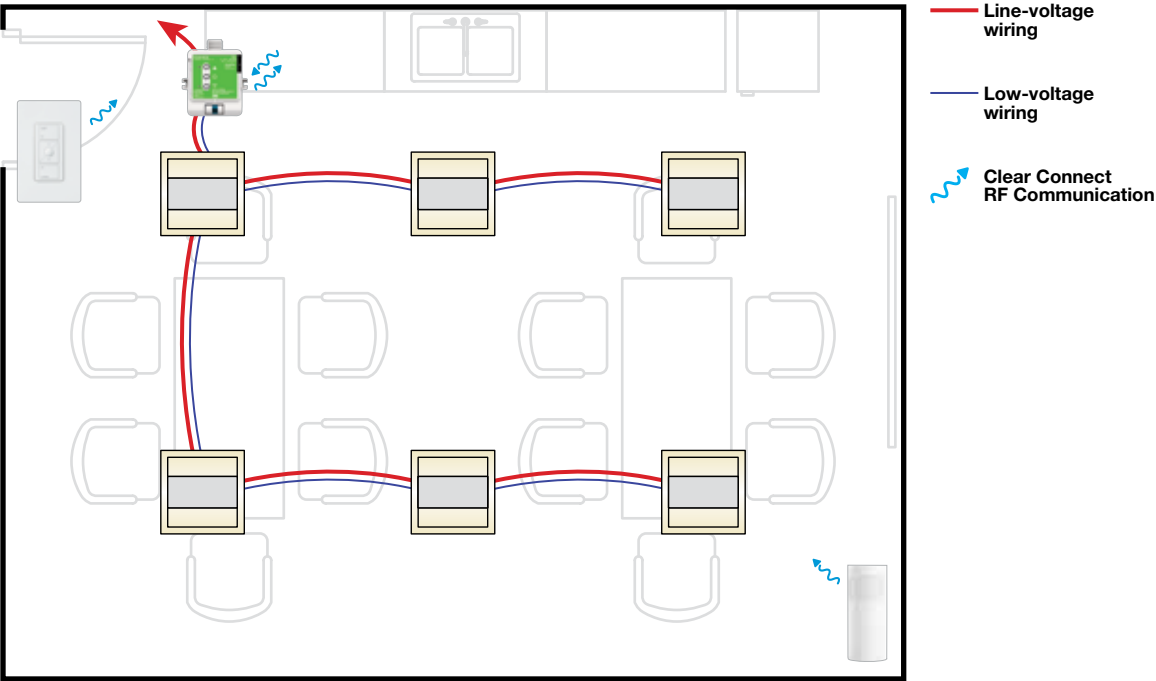





Scene Control

Lighting Energy Savings*

60%

* Go to lutron.com/references for more information.



Symbol	Model Number	Description	Qty	List Price Each
	RMJS-8T-DV-B	PowPak dimming module with 0-10V	1	\$ 180.00
	LRF2-VKLB-P-WH	Radio Powr Savr wireless corner-mount vacancy sensor	1	\$ 105.00
	PJ2-3BRL-GWH-L01	Pico wireless 3-button with raise/lower control	1	\$ 27.00
	PICO-WBX-ADAPT	Pico wallbox adapter	1	\$ 9.50

Code Notes: For break rooms with daylight, include a 0-10V dimming module per zone and a daylight sensor. Want to add a Vive wireless hub for more features? Go to lutron.com/vive for complete compatibility and design details. This solution requires 0-10V enabled ballasts and drivers by others.

Visible System Components



Control Functionality

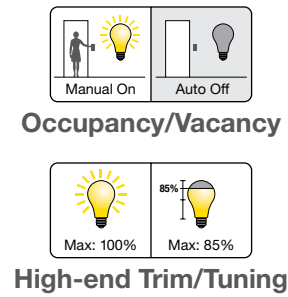
Occupant Enters:
Lights do not automatically turn on when an occupant enters the space; lights must be turned on manually. Maximum light level is set to 80%.

When Occupied:
Manual: Occupant uses wall dimmer to set desired light levels for all lights.

Occupant Exits:
All lights automatically turn off 15 minutes after all occupants exit.

Add a Vive wireless hub to enable simple setup and rezoning, system monitoring, timeclock functionality, and advanced integration.

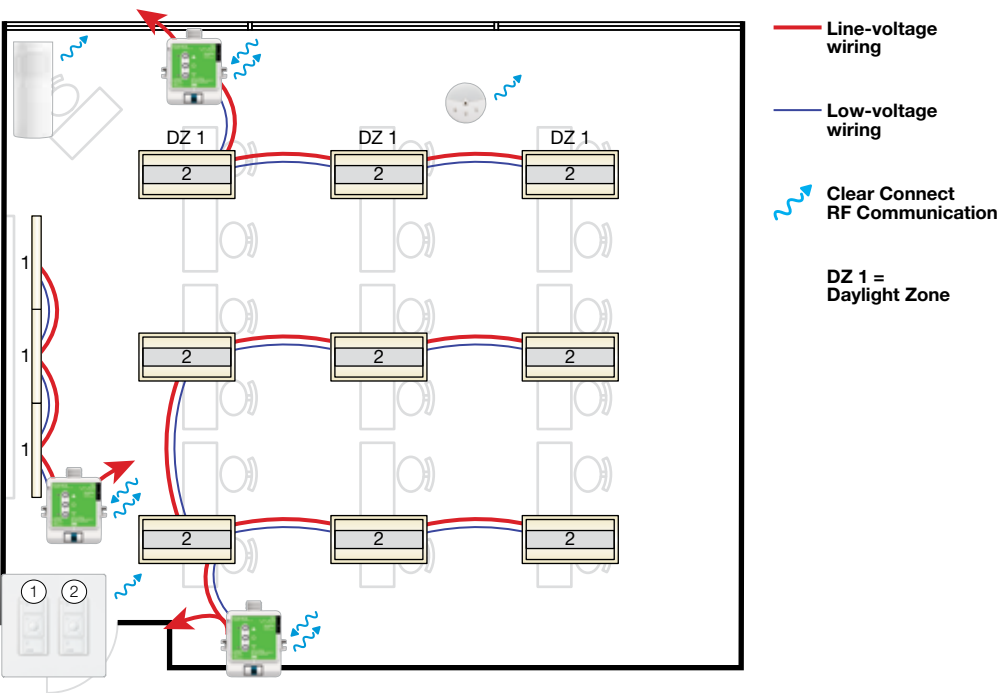
Control Strategies







Lighting Energy Savings*

45%

* Go to lutron.com/references for more information.



Symbol	Model Number	Description	Qty	List Price Each
	RMJS-8T-DV-B	PowPak dimming module with 0-10V	3	\$ 180.00
	LRF2-DCRB-WH	Radio Powr Savr wireless daylight sensor	1	\$ 150.00
	LRF2-VKLB-P-WH	Radio Powr Savr wireless corner-mount vacancy sensor	1	\$ 105.00
	PJ2-3BRL-GWH-L01	Pico wireless 2-button control	2	\$ 27.00
	PICO-WBX-ADAPT	Pico wallbox adapter	2	\$ 9.50

Code Notes: For non-daylight classrooms, all general lighting can be connected to a single 0-10V dimming module. Want to add a Vive wireless hub for more features? Go to lutron.com/vive for complete compatibility and design details. This solution requires 0-10V enabled ballasts and drivers by others.

Visible System Components



Control Functionality

Occupant Enters:
Lights do not automatically turn on when an occupant enters the space; lights must be turned on manually. Maximum light level is set to 80%.

When Occupied:
Automatic: Overhead lights dim/brighten based on daylight availability. There is one perimeter daylight zone.

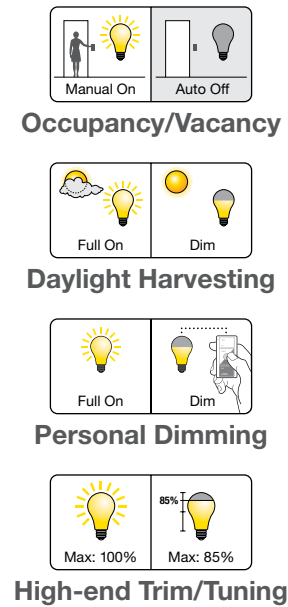
Manual: Occupant uses wall dimmers to set desired light levels for both general and white-board lights.

Occupant Exits:
All lights automatically turn off 15 minutes after all occupants exit.

Add a Vive wireless hub to enable simple setup and rezoning, system monitoring, timeclock functionality, and advanced integration.



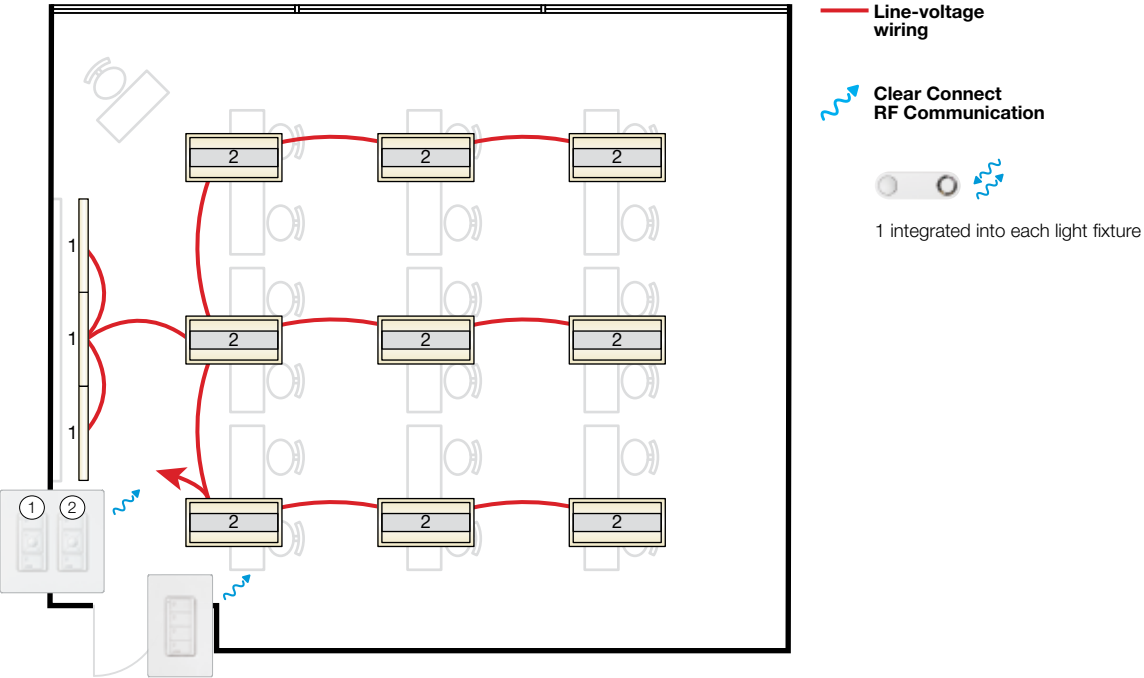
Control Strategies



Lighting Energy Savings*

60%

* Go to lutron.com/references for more information.



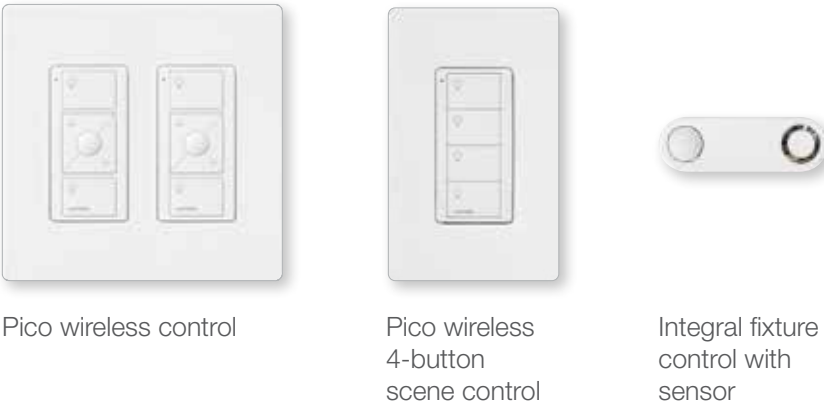
Symbol	Model Number	Description	Qty	List Price Each
	Integral to fixture ¹	Integral fixture control with sensor	12	\$ 78.00 ²
	PJ2-4B-GWH-L31	Pico wireless 4-button scene control	1	\$ 45.00
	PJ2-3BRL-GWH-L01	Pico wireless 3-button with raise/lower control	2	\$ 27.00
	PICO-WBX-ADAPT	Pico wallbox adapter	3	\$ 9.50

1 Fixture control comes pre-installed in fixture. Look for the Clear Connect Wireless symbol for fixtures containing this module. Go to lutron.com/findafixture for a complete list of compatible fixtures and drivers.

2 Fixture adder for the control module may vary.

Want to add a Vive wireless hub for more features? Go to lutron.com/vive for complete compatibility and design details.
This solution requires digitally enabled ballasts and drivers by others.
This solution meets the requirements of the Luminaire Level Lighting Controls (LLLC) prescriptive path specified in section C405.2.2.
This solution meets the requirements of the Enhanced Digital Lighting Controls Additional Efficiency Package (Section C406).

Visible System Components



Control Functionality

Occupant Enters:
All lights automatically turn on to 50% light level. Occupant turns on lights to maximum level manually. Maximum light level is set to 80%.

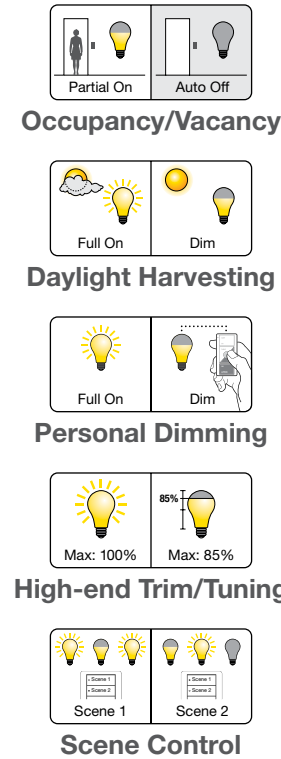
When Occupied:
Automatic: Overhead lights dim/brighten based on daylight availability. There are two perimeter daylight zones.

Manual: Occupant selects scenes or uses dimmers to set desired light levels for all lights. Entry scene controller has 3 user preferred presets and 1 all off button.

Occupant Exits:
All lights automatically turn off 15 minutes after all occupants exit.

Add a Vive wireless hub to enable simple setup and rezoning, system monitoring, timeclock functionality, and advanced integration.

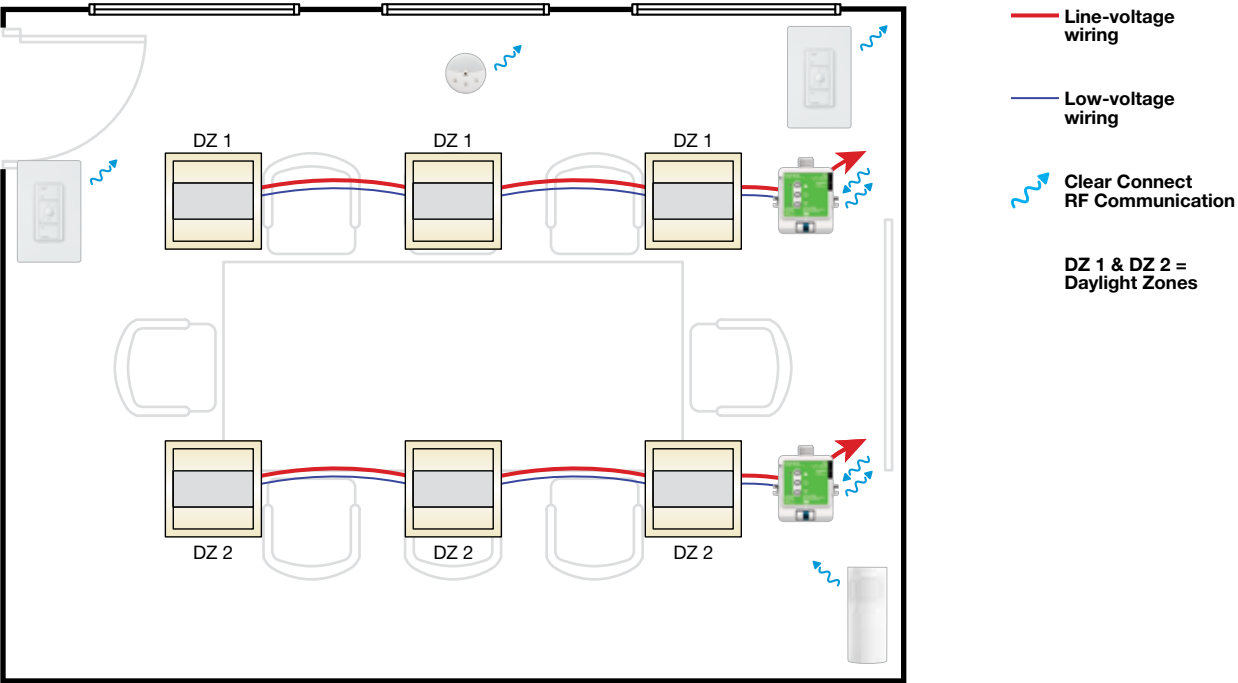
Control Strategies







Lighting Energy Savings*

65%

* Go to lutron.com/references for more information.



Symbol	Model Number	Description	Qty	List Price Each
	RMJS-8T-DV-B	PowPak dimming module with 0-10V	2	\$ 180.00
	LRF2-DCRB-WH	Radio Powr Savr wireless daylight sensor	1	\$ 150.00
	LRF2-VKLB-P-WH	Radio Powr Savr wireless corner-mount vacancy sensor	1	\$ 105.00
	PJ2-3BRL-GWH-L01	Pico wireless 2-button control	2	\$ 27.00
	PICO-WBX-ADAPT	Pico wallbox adapter	2	\$ 9.50

Code Notes: For non-daylight conference rooms, the lighting can be connected to a single 0-10V dimming module. Want to add a Vive wireless hub for more features? Go to lutron.com/vive for complete compatibility and design details. This solution requires 0-10V enabled ballasts and drivers by others.

Visible System Components



Control Functionality

Occupant Enters:
Lights do not automatically turn on when an occupant enters the space; lights must be turned on manually. Maximum light level is set to 80%.

When Occupied:
Automatic: Overhead lights dim/brighten based on daylight availability. There are two perimeter daylight zones.

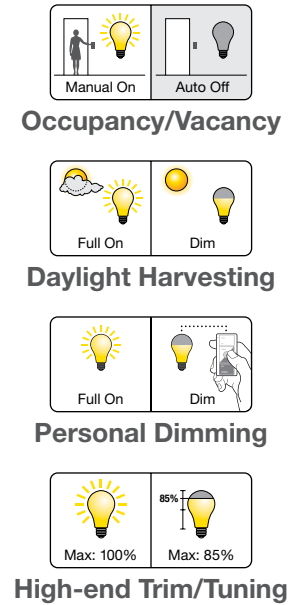
Manual: Occupant uses wall dimmer to set desired light levels for all lights.

Occupant Exits:
All lights automatically turn off 15 minutes after all occupants exit.

Add a Vive wireless hub to enable simple setup and rezoning, system monitoring, timeclock functionality, and advanced integration.



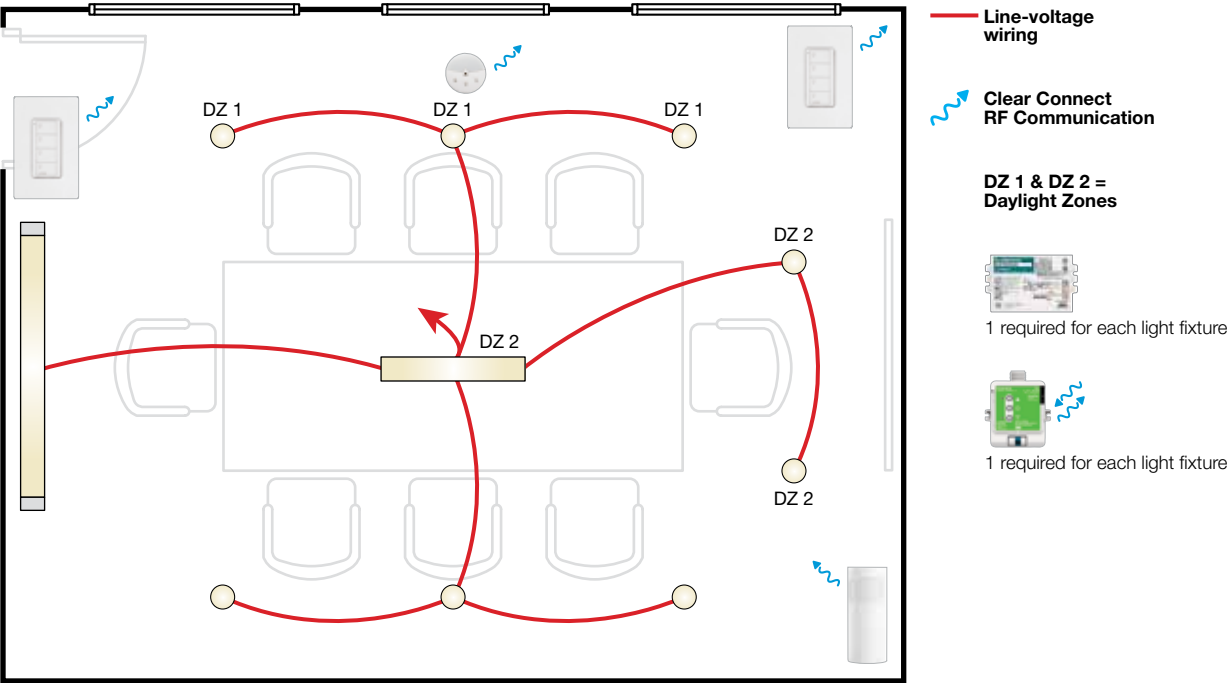
Control Strategies



Lighting Energy Savings*

60%

* Go to lutron.com/references for more information.



Symbol	Model Number	Description	Qty	List Price Each
	Multiple	EcoSystem-enabled Hi-Lume Soft-on, Fade-to-Black series ballasts/drivers	10	Consult your local rep
	FCJS-ECO	Wireless fixture control with EcoSystem	10	\$ 91.00
	LRF2-DCRB-WH	Radio Powr Savr wireless daylight sensor	1	\$ 150.00
	LRF2-VKLB-P-WH	Radio Powr Savr wireless corner-mount vacancy sensor	1	\$ 105.00
	PJ2-4B-GWH-L31	Pico wireless 4-button scene control	2	\$ 45.00
	PICO-WBX-ADAPT	Pico wallbox adapter	2	\$ 9.50

Visible System Components



Control Functionality

Occupant Enters:
Lights do not automatically turn on when an occupant enters the space; lights must be turned on manually. Maximum light level is set to 80%.

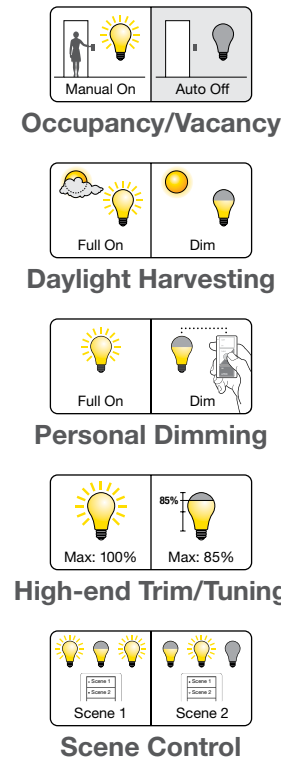
When Occupied:
Automatic: Overhead lights dim/brighten based on daylight availability. There are two perimeter daylight zones.

Manual: Occupant selects scenes to set desired light levels for all lights. Entry scene controller has 3 user preferred presets and 1 all off button.

Occupant Exits:
All lights automatically turn off 15 minutes after all occupants exit.

Add a Vive wireless hub to enable simple setup and rezoning, system monitoring, timeclock functionality, and advanced integration.

Control Strategies

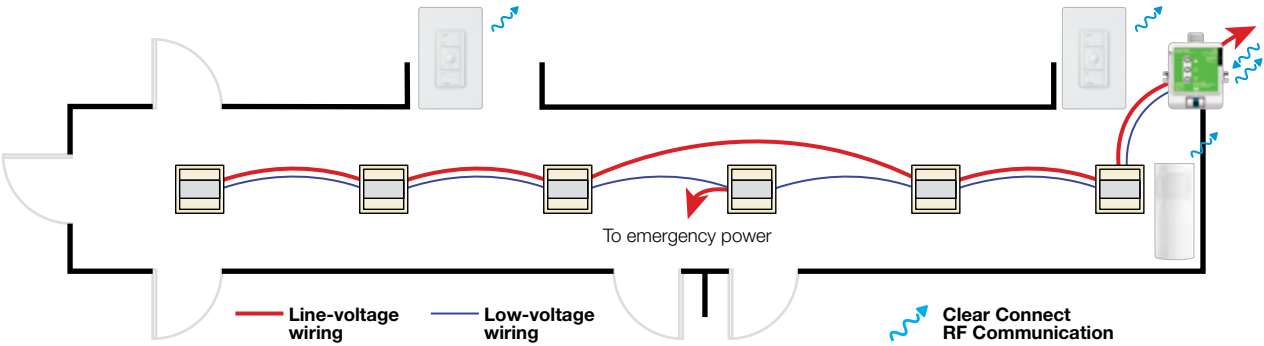





Lighting Energy Savings*

60%

* Go to lutron.com/references for more information.

Want to add a Vive wireless hub for more features? Go to lutron.com/vive for complete compatibility and design details.



Symbol	Model Number	Description	Qty	List Price Each
	RMJS-8T-DV-B	PowPak dimming module with 0-10V	1	\$ 180.00
	LRF2-OHLB-P-WH	Radio Powr Savr wireless hallway occupancy sensor	1	\$ 105.00
	PJ2-3BRL-GWH-L01	Pico wireless 3-button with raise/lower control	2	\$ 27.00
	PICO-WBX-ADAPT	Pico wallbox adapter	2	\$ 9.50

Code Notes: Verify that the egress fixtures go to full output upon loss of control signal. For projects that require UL 924 compliance, provide an automatic load control relay (ALCR) per load controller connected to emergency fixtures. Add a daylight sensor for corridors with daylight zones. Want to add a Vive wireless hub for more features? Go to lutron.com/vive for complete compatibility and design details. This solution requires 0-10V enabled ballasts and drivers by others.

Visible System Components



Pico wireless control



Radio Powr Savr wireless hallway occupancy sensor

Control Functionality

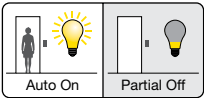
Occupant Enters:
All lights automatically turn on to maximum light level. Maximum light level is set to 80%.

When Occupied:
Manual: Occupant uses wall dimmer to set desired light levels for all lights. Manual control cannot fully shut off the lights. Minimum light level is set to 10%.

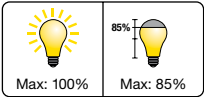
Occupant Exits:
All lights automatically go to minimum light level 15 minutes after all occupants exit.

Emergency Mode:
Lighting connected to emergency power turns on to full output.

Control Strategies



Occupancy/Vacancy



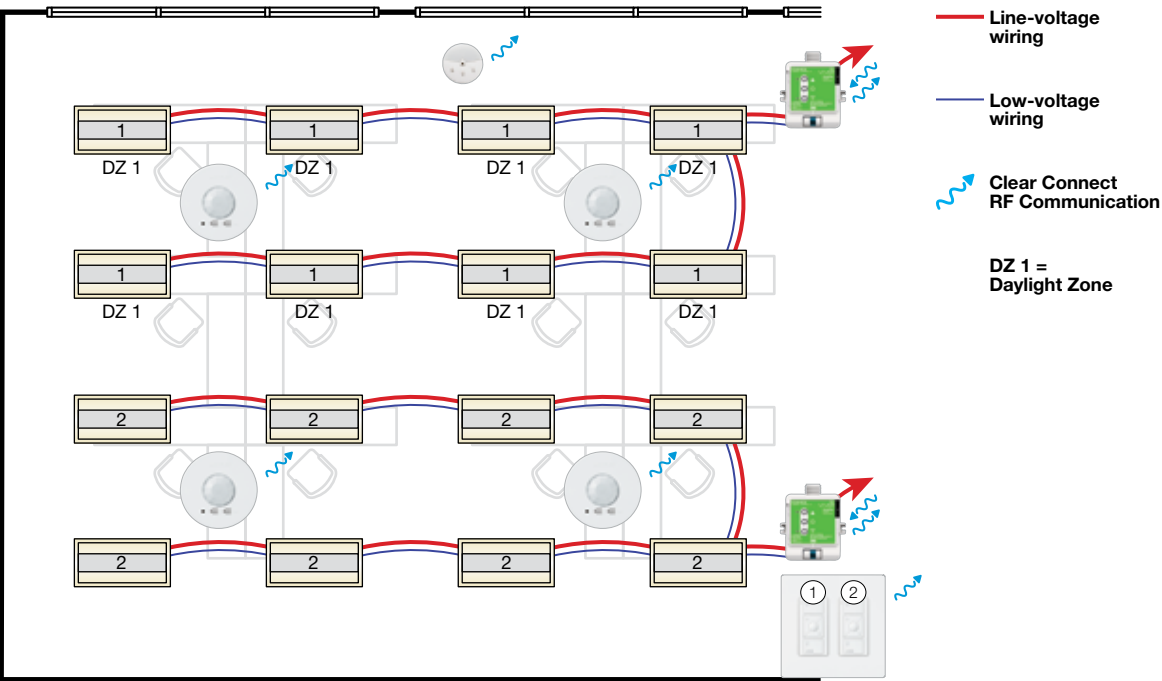
High-end Trim/Tuning





Lighting Energy Savings*

60%

Code Notes: For non-egress corridors, set the minimum light level to full off.

* Go to lutron.com/references for more information.



Symbol	Model Number	Description	Qty	List Price Each
	RMJS-8T-DV-B	PowPak dimming module with 0-10 V	2	\$ 180.00
	LRF2-DCRB-WH	Radio Powr Savr wireless daylight sensor	1	\$ 150.00
	LRF2-OCR2B-P-WH	Radio Powr Savr wireless ceiling-mount occupancy sensor	4	\$ 105.00
	PJ2-3BRL-GWH-L01	Pico wireless 3-button with raise/lower control	2	\$ 27.00
	PICO-WBX-ADAPT	Pico wallbox adapter	2	\$ 9.50

Want to add a Vive wireless hub for more features? Go to lutron.com/vive for complete compatibility and design details. This solution requires 0-10V enabled ballasts and drivers by others.

Visible System Components



Pico wireless control



Radio Powr Savr wireless ceiling-mount occupancy sensor and daylight sensor

Control Functionality

Occupant Enters:
All lights in individual zones automatically turn on to 50% light level. Occupant turns on lights to maximum light level manually. Maximum light level is set to 80%.

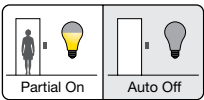
When Occupied:
Automatic: Overhead lights dim/brighten based on daylight availability. There is one perimeter daylight zone.

Manual: Occupant uses wall dimmer to set desired light levels for all lights.

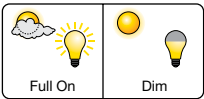
Occupant Exits:
All lights in individual zones turn off 15 minutes after all occupants exit that zone.

Add a Vive wireless hub to enable simple setup and rezoning, system monitoring, timeclock functionality, and advanced integration.

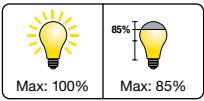
Control Strategies



Occupancy/Vacancy



Daylight Harvesting



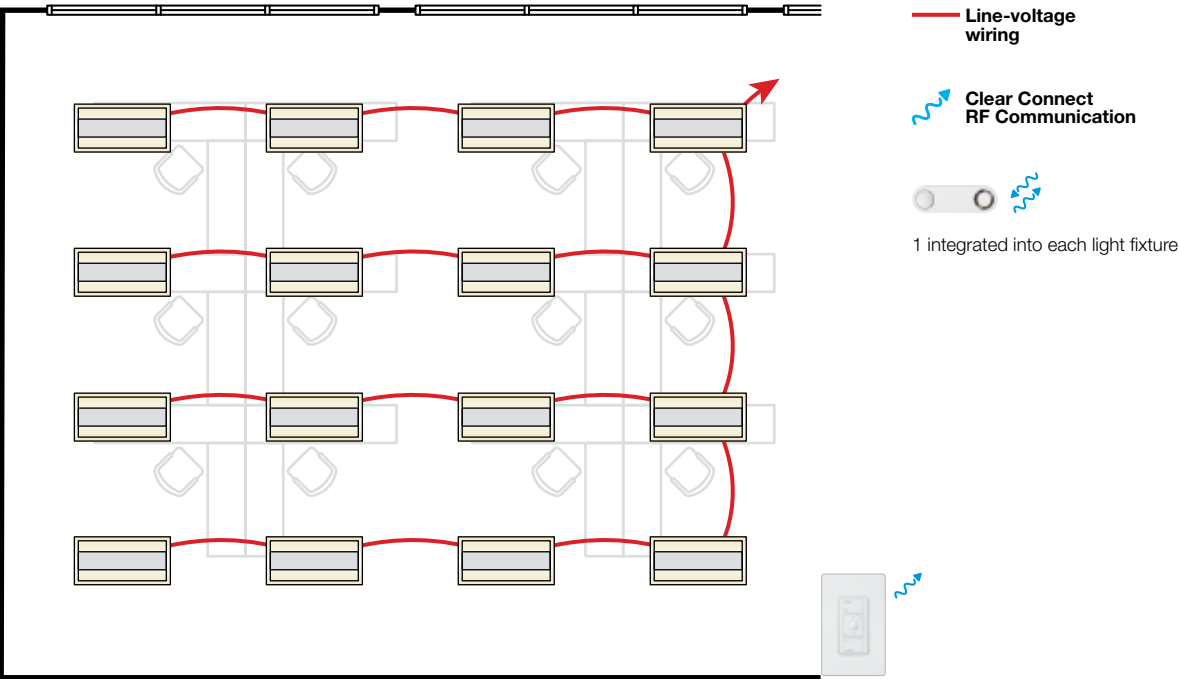
High-end Trim/Tuning



Lighting Energy Savings*

50%

* Go to lutron.com/references for more information.


Code Notes: Control zones are limited to 600 sq. ft.



Symbol	Model Number	Description	Qty	List Price Each
	Internal to fixture ¹	Internal fixture control with sensor	16	\$ 78.00 ²
	PJ2-3BRL-GWH-L01	Pico wireless 3-button with raise/lower control	1	\$ 27.00
	PICO-WBX-ADAPT	Pico wallbox adapter	1	\$ 9.50

1 Fixture control comes pre-installed in fixture. Look for the Clear Connect Wireless symbol for fixtures containing this module. Go to lutron.com/findafixture for a complete list of compatible fixtures and drivers.

2 Fixture adder for the control module may vary.



Visible System Components



Control Functionality

Occupant Enters:
Each individual light automatically turns on to 50% light level as occupant approaches fixture proximity. Maximum light level is set to 80%.

When Occupied:
Automatic: Each individual overhead light dims/brightens based on local daylight availability.

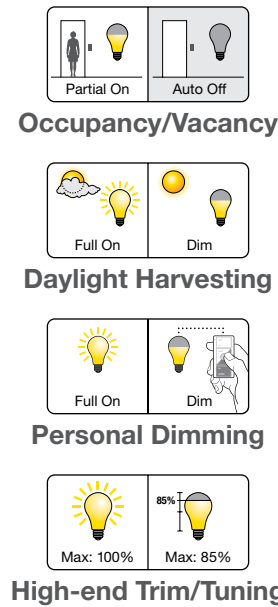
Manual: Occupant uses wall dimmer to set desired light levels for all lights.

Occupant Exits:
Each individual light automatically turns off 15 minutes after all occupants exit fixture proximity.

Add a Vive wireless hub to enable simple setup and rezoning, system monitoring, timeclock functionality, and advanced integration.



Control Strategies



Lighting Energy Savings*

60%

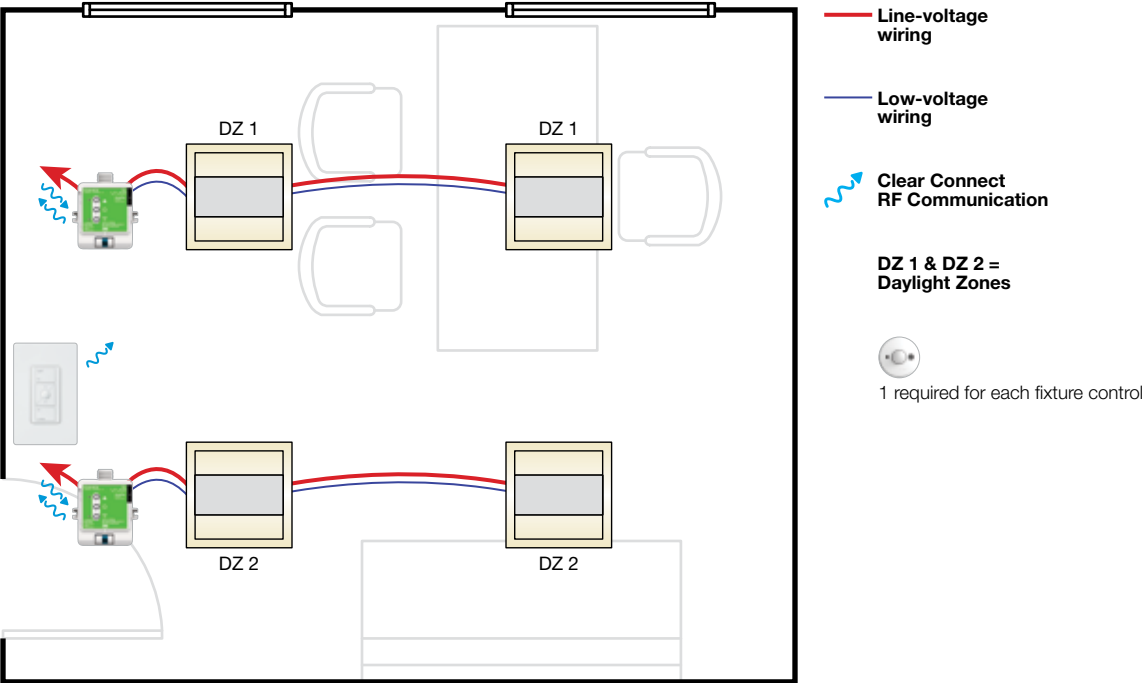
* Go to lutron.com/references for more information.




Want to add a Vive wireless hub for more features? Go to lutron.com/vive for complete compatibility and design details.

This solution requires digitally enabled ballasts and drivers by others.

This solution meets the requirements of the Luminaire Level Lighting Controls (LLC) prescriptive path specified in section C405.2.2.

This solution meets the requirements of the Enhanced Digital Lighting Controls Additional Efficiency Package (Section C406).



Symbol	Model Number	Description	Qty	List Price Each
	FCJS-010	Wireless fixture control with 0-10 V	2	\$ 91.00
	FC-SENSOR	PowPak fixture sensor	2	\$ 40.50
	PJ2-3BRL-GWH-L01	Pico wireless 3-button with raise/lower control	1	\$ 27.00
	PICO-WBX-ADAPT	Pico wallbox adapter	1	\$ 9.50

FCJS models are capable of controlling up to 3 ballasts or drivers. Review the "Vive PowPak Fixture Controls" submittal document for more design details. Want to add a Vive wireless hub for more features? Go to lutron.com/vive for complete compatibility and design details. This solution requires 0-10V enabled ballasts and drivers by others.

Visible System Components



Control Functionality

Occupant Enters:
Lights do not automatically turn on when an occupant enters the space; lights must be turned on manually. Maximum light level is set to 80%.

When Occupied:
Automatic: Overhead lights dim/brighten based on daylight availability. There are two perimeter daylight zones.

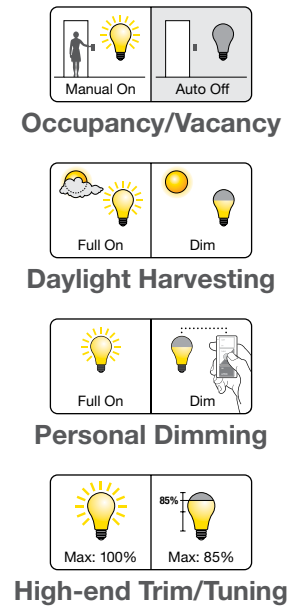
Manual: Occupant uses wall dimmer to set desired light levels for all lights.

Occupant Exits:
All lights automatically turn off 15 minutes after all occupants exit.

Add a Vive wireless hub to enable simple setup and rezoning, system monitoring, timeclock functionality, and advanced integration.



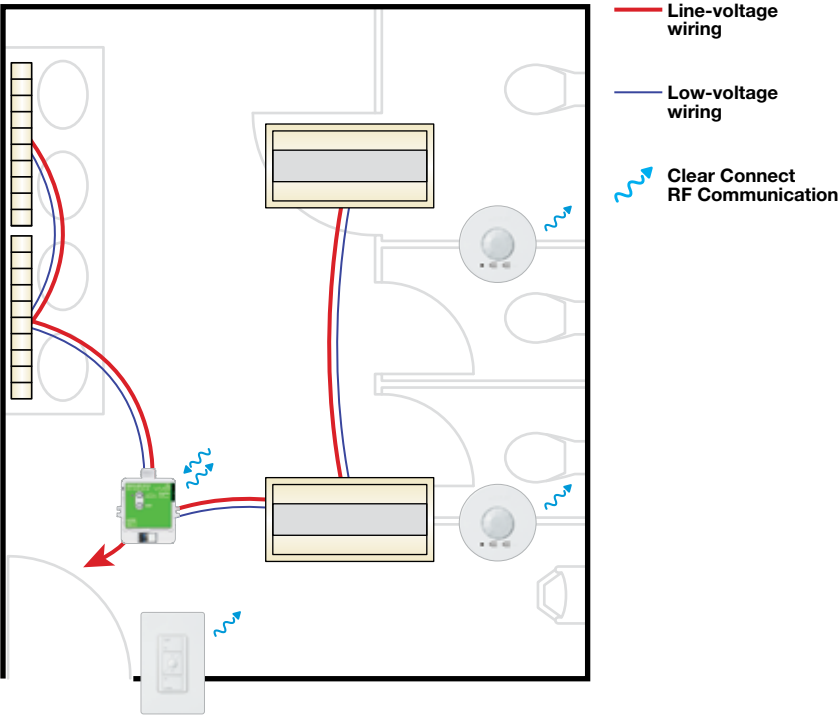
Control Strategies






Lighting Energy Savings*

60%

* Go to lutron.com/references for more information.



Symbol	Model Number	Description	Qty	List Price Each
	RMJS-8T-DV-B	PowPak dimming module with 0-10V	1	\$ 180.00
	LRF2-OCR2B-P-WH	Radio Powr Savr wireless ceiling-mount occupancy sensor	2	\$ 105.00
	PJ2-3BRL-GWH-L01	Pico wireless 3-button with raise/lower control	1	\$ 27.00
	PICO-WBX-ADAPT	Pico wallbox adapter	1	\$ 9.50

Want to add a Vive wireless hub for more features? Go to lutron.com/vive for complete compatibility and design details. This solution requires 0-10V enabled ballasts and drivers by others.

Visible System Components



Control Functionality

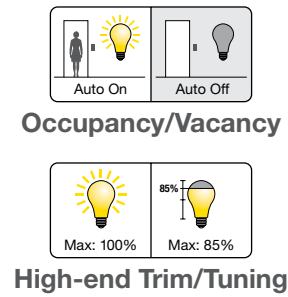
Occupant Enters:
All lights automatically turn on to maximum light level. Maximum light level is set to 80%.

When Occupied:
Manual: Occupant uses wall dimmer to set desired light levels for all lights.

Occupant Exits:
All lights automatically turn off 15 minutes after all occupants exit.

Add a Vive wireless hub to enable simple setup and rezoning, system monitoring, timeclock functionality, and advanced integration.

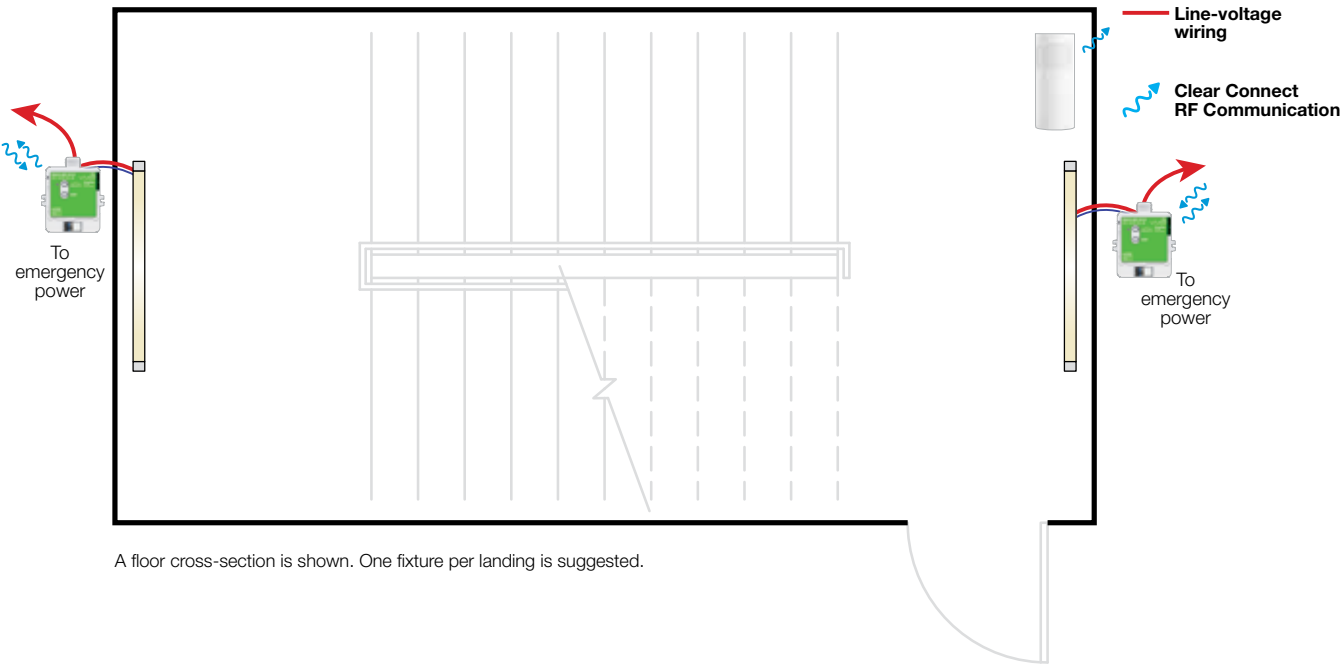
Control Strategies





Lighting Energy Savings*

50%

* Go to lutron.com/references for more information.



Symbol	Model Number	Description	Qty	List Price Each
	FCJS-010	Wireless fixture control with 0-10 V	2	\$ 91.00
	LRF2-OKLB-P-WH	Radio Powr Savr wireless corner-mount occupancy sensor	1 (per floor)	\$ 105.00

Code Notes: Verify that the egress fixtures go to full output upon loss of control signal. For projects that require UL 924 compliance, provide an automatic load control relay (ALCR) per load controller connected to emergency fixtures. Add a daylight sensor for stairwells with daylight zones. Lutron Stairwell Fixture (FXSWLX44) is not currently compatible with the Vive wireless hub. A new model number is coming soon that will include Vive compatibility. Go to lutron.com/vive for the latest compatibility details.

Visible System Components



Radio Powr Savr
wireless corner-mount
occupancy sensor



Control Functionality

- Occupant Enters:**
All lights automatically turn on to maximum light level. Maximum light level is set to 80%.
- Occupant Exits:**
All lights dim to minimum light level 15 minutes after all occupants exit. Minimum light level is set to 10%.
- Emergency Mode:**
Lighting connected to emergency power turns on to full output.

Code Notes: For non-egress stairwells, see the recommended solution and set the minimum light level to full off.





Control Strategies



Auto On Partial Off

Occupancy/Vacancy



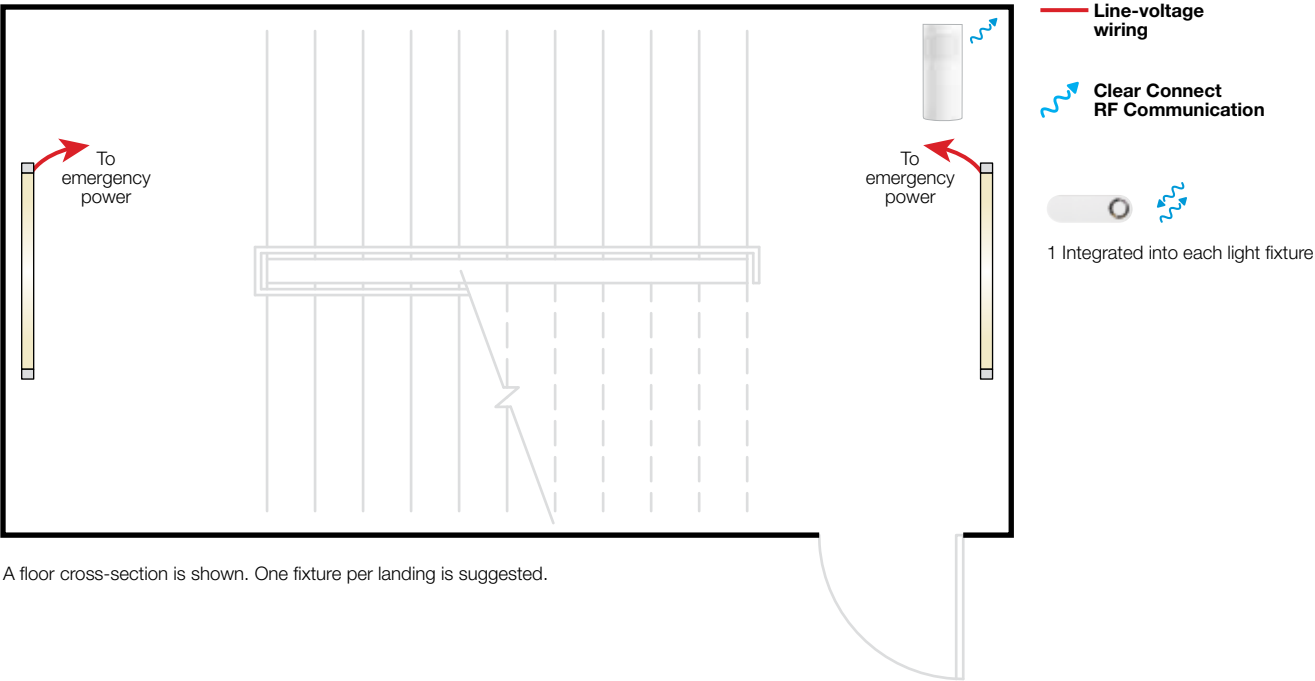
Max: 100% Max: 85%

High-end Trim/Tuning



Lighting Energy Savings*

80%

* Go to lutron.com/references for more information.



A floor cross-section is shown. One fixture per landing is suggested.

Symbol	Model Number	Description	Qty	List Price Each
	Integral to fixture ¹	Integral fixture control	2 (per floor)	\$ 67.00 ²
	LRF2-OKLB-P-WH	Radio Powr Savr wireless corner-mount occupancy sensor	1 (per floor)	\$ 105.00

1 Fixture control comes pre-installed in fixture. Look for the Clear Connect Wireless symbol for fixtures containing this module. Go to lutron.com/findafixture for a complete list of compatible fixtures and drivers.

2 Fixture adder for the control module may vary.



Code Notes: Verify that the egress fixtures go to full output upon loss of control signal. For projects that require UL 924 compliance, provide an automatic load control relay (ALCR) per load controller connected to emergency fixtures. Add a daylight sensor for stairwells with daylight zones. This solution requires digitally enabled ballasts and drivers by others.

Visible System Components



Control Functionality

Occupant Enters:
All lights automatically turn on to maximum light level. Maximum light level is set to 80%.

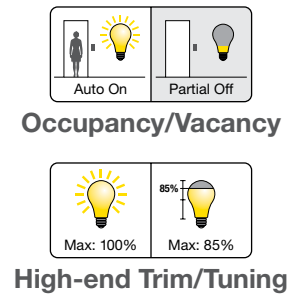
Occupant Exits:
All lights dim to minimum light level 15 minutes after all occupants exit. Minimum light level is set to 10%.

Emergency Mode:
Lighting connected to emergency power turns on to full output.

Code Notes: For non-egress stairwells, set the minimum light level to full off.



Control Strategies



Lighting Energy Savings*

80%

* Go to lutron.com/references for more information.

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