IECC 2015

Design to meet code compliance with Lutron

❖LUTRON

Introduction

Applications

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
Max: 100% / Max: 80%	**High-end trim/tuning** sets the maximum light level based on customer requirements in each space.*	10–30% Lighting
Auto On / Auto Off	**Occupancy/vacancy sensing** turns lights on when occupants are in a space and off when they vacate the space.*	20–60% Lighting
Full On / Dim	**Daylight harvesting** dims electric lights when daylight is available to light the space.*	25–60% Lighting
Full On / Dim	**Personal dimming control** gives occupants the ability to set the light level.*	10–20% Lighting
Shade Open / Shade Closed	**Controllable window shading** moves shades to reduce glare and solar heat gain.*	10–20% Cooling
7am: Dim / 7pm: Off	**Scheduling** provides scheduled changes in light levels based on the time of day.*	10–20% Lighting
Full On / Dim	**Demand response** automatically reduces lighting loads during peak electricity usage times.*	30–50% During peak period
Appliance On / Appliance Off	**Plug load control** automatically turns off loads after occupants leave a space.*	15–50% of Controlled loads
Heating / Cooling	**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

Strategies for code/standards compliance

	Local Solutions			Outdoor/Parking Garage solutions
	Wallbox	Vive	Vive with wireless hub*	Limelight
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

The requirements listed below are summarized for simplicity and may have other exceptions that were omitted.

	Minimum control type	Description	Code provision
Manual Control	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.	C405.2.2.3
Manual Control	Dimmer or scene control	Lighting shall be capable of being reduced by at least 50% of maximum lighting power. There shall be a manual device allowing an occupant to reduce lighting by at least 50% of maximum lighting power 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	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.	C405.2.2 C405.2.5
Automatic ON/OFF Control	Occupancy sensor	Automatic control turns lighting ON upon occupancy or OFF after a vacancy of 30 minutes or less.	C405.2.1
Automatic ON/OFF Control / Settings	Full ON	When initiated by a timeclock or occupancy sensor, lighting is automatically turned ON to maximum lighting power.	C405.2.1.1 Exception
Settings	Partial ON	When initiated by a timeclock or occupancy sensor, lighting is automatically turned ON to 50% or less of maximum lighting power.	C405.2.1
Settings	Manual ON	Lighting is turned ON manually by an occupant.	C405.2.1.1
Settings	Full OFF	When initiated by a timeclock or occupancy sensor, lighting is automatically turned OFF.	C405.2.1
Settings	Partial OFF	When initiated by a timeclock or occupancy sensor, lighting is automatically reduced by at least 50% of maximum lighting power (30% for parking garages). Automatic full OFF also complies.	C405.2, Exception C405.2.5
Other	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 operation of an astronomical timeclock.	C405.2.3 C405.2.5
Other	Receptacle control	Receptacle control is not required by this energy code.	N/A
Other	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).
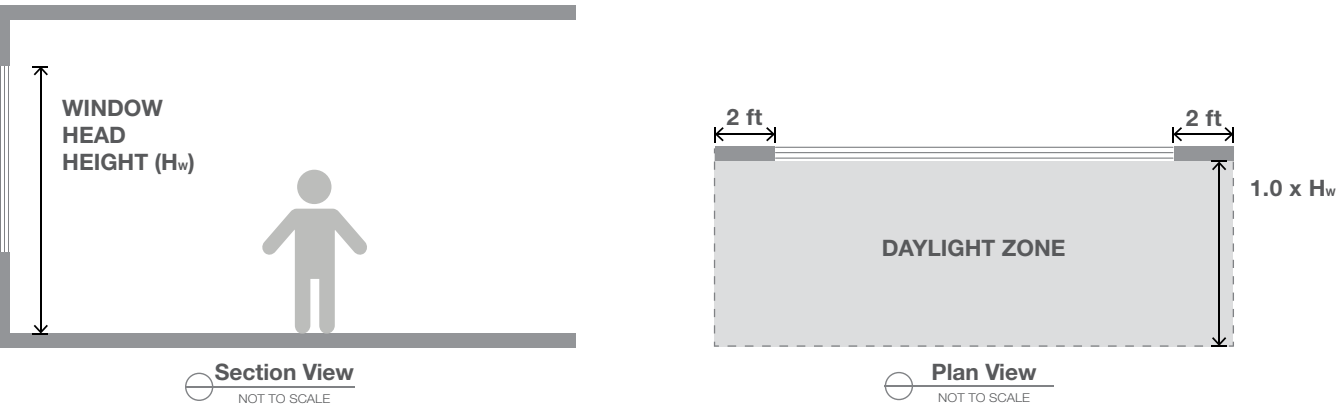
Daylight Zone Requirements:
Sidelighted daylight zones must be controlled separately from toplighted zones. North, South, East, and West zones must also be controlled separately.
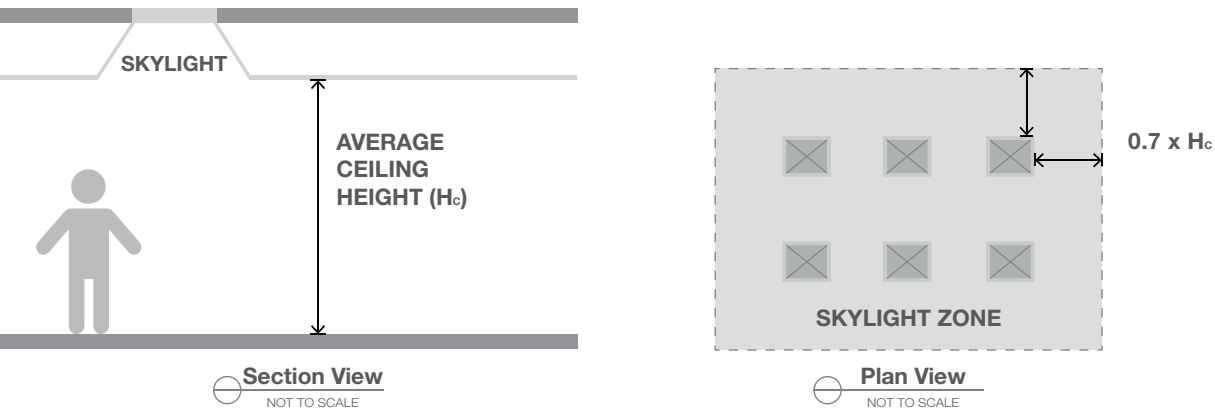
Daylight Exceptions:
Daylight control is not required when the total lighting power of a daylight zone is 150 W or less, or when the total glazing area is 24 sq. ft. or less. Other exceptions exist, based on space type, window area, neighboring obstructions, and glass transmittance.

Sidelighting (Window)

WINDOW HEAD HEIGHT (H_W)

Section View — NOT TO SCALE

2 ft — 2 ft

$1.0 \times H_W$

DAYLIGHT ZONE

Plan View — NOT TO SCALE

Toplighting (Skylight)

SKYLIGHT

AVERAGE CEILING HEIGHT (H_C)

Section View — NOT TO SCALE

$0.7 \times H_C$

SKYLIGHT ZONE

Plan View — NOT TO SCALE

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 2013 can also be used as a compliance option in meeting IECC 2015 requirements.

Diagram key:

◉ = New construction   ⚙ = Lighting retrofit[1]   ⚙ = New construction and retrofit[1]

		Atrium	Classroom, Lecture Hall, Training Room	Conference, Break Room	Corridor[2]	Lobby	Open Office (>300 sq. ft.)
Manual Control	Switch		●	●			
	Dimmer or scene control	●			●	●	●
Automatic ON/OFF Control	Timeclock	●					
	Occupancy sensor		●	●	●	●	●
Settings	Full ON				●	●	
	Partial ON	●					●
	Manual ON		●	●			
	Full OFF	●	●	●		●	●
	Partial OFF				●[5]		
Other	Daylight responsive control	●	●[6]	●	●	●	●[6]
	Receptacle control						
	Demand response						

	Parking Garage[3]	Private Office (<300 sq. ft)	Restroom	Stairwell[2]	Storage Room	Facade/ Landscape	Parking Lot/ Other Exterior[4]
Switch		●	●		●		
Dimmer or scene control				●			
Timeclock	●					●	●
Occupancy sensor	●	●	●	●	●		
Full ON	●		●	●		●	●
Partial ON	●					●	●
Manual ON		●		●			
Full OFF	●	●	●		●	●	●
Partial OFF	●			●[5]		●	●
Daylight responsive control	●	●[6]	●	●	●	●	●
Receptacle control							
Demand response							

1 All retrofits altering more than 50% of the luminaires, or 10% with alterations to controls and/or circuits, 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 Timeclock ensures the lights are on when typically occupied. Occupancy sensor controls lights when typically unoccupied.

4 Astronomical timeclock shall ensure all lights are off during daylight hours. Lights should be scheduled to Partial OFF during night hours. See section C405.2.5 for scheduling times.

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

6 These spaces require continuous daylight dimming to OFF.

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.

Room type

Type of solution

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.

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 products are laid out in the space

Learn more about the products used in the space

Understand how the space functions with the installed system

Vive Local Solutions Layout

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.
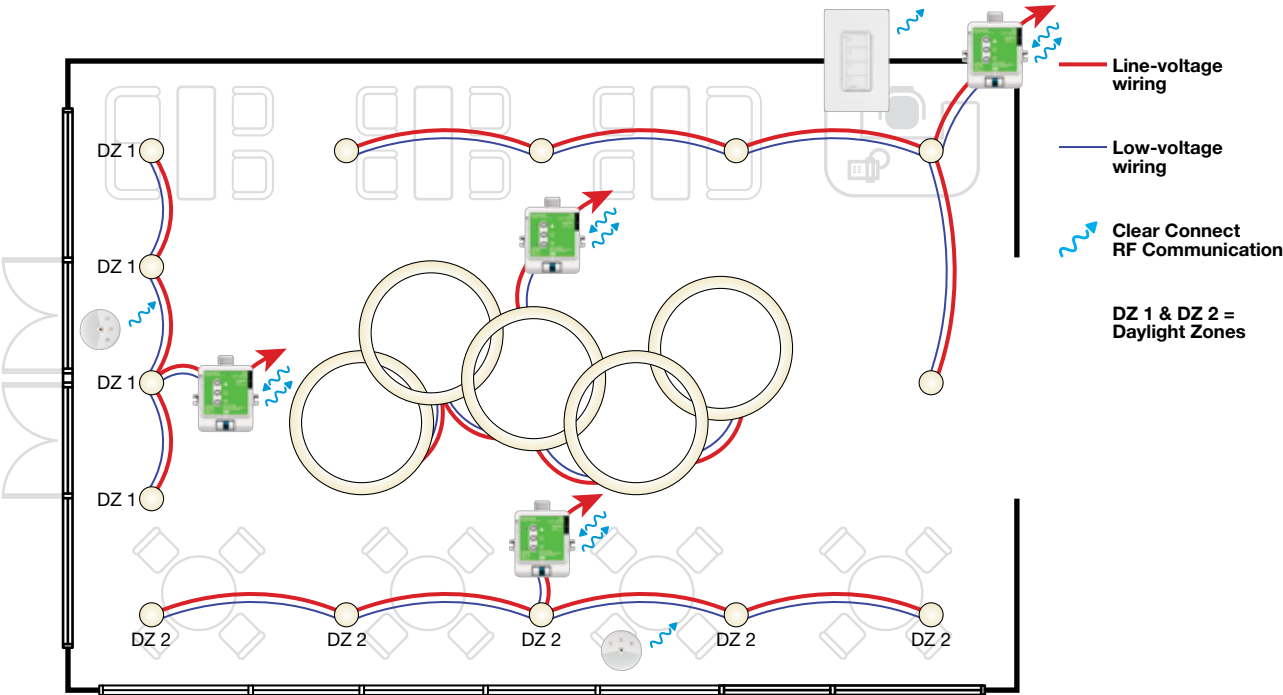
Line-voltage wiring

Low-voltage wiring

Clear Connect RF Communication

DZ 1 & DZ 2 = Daylight Zones

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
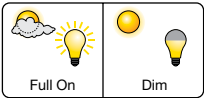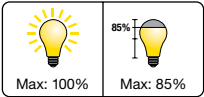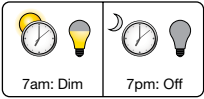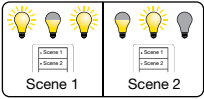
Full On	Dim

Daylight Harvesting

Max: 100%	Max: 85%

High-end Trim/Tuning

7am: Dim	7pm: Off

Scheduling

Scene 1	Scene 2

Scene Control

Lighting Energy Savings*

60%

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

Line-voltage wiring

Low-voltage wiring

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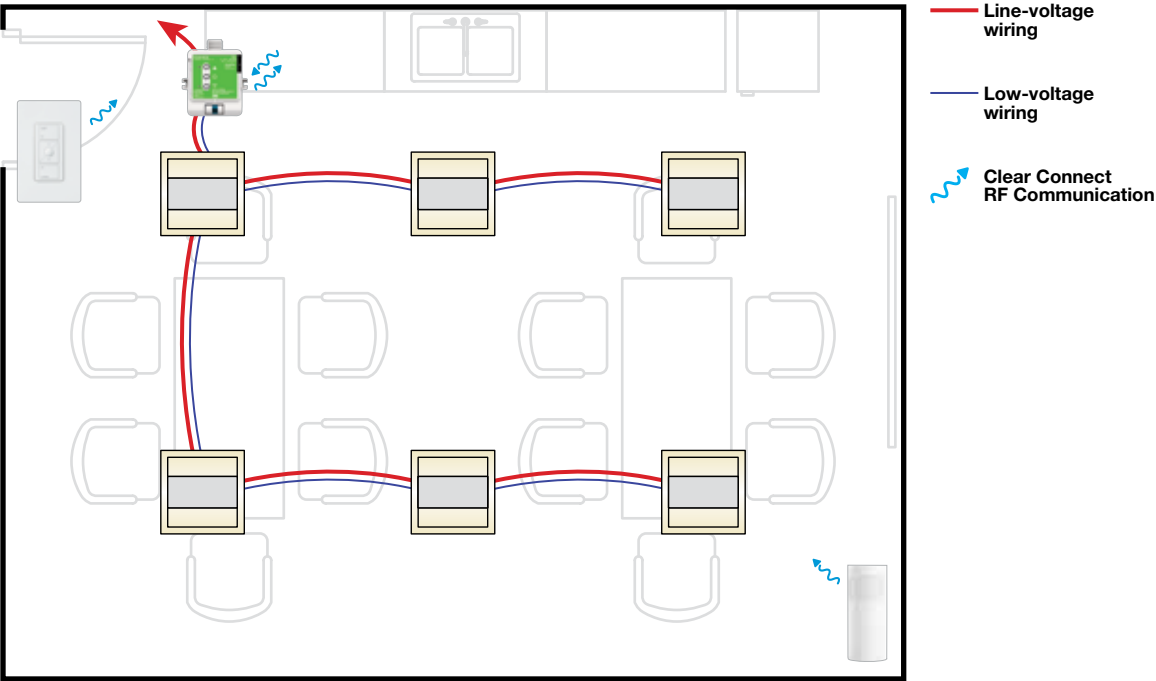
Symbol	Model Number	Description	Qty	List Price Each
	RMJS-8T-DV-B	PowPak dimming module with 0-10V	1	$ 180.00
	LRF2-VKLB-P-WH	Radio Powr Savr wireless corner-mount vacancy sensor	1	$ 105.00
	PJ2-3BRL-GWH-L01	Pico wireless 3-button with raise/lower control	1	$ 27.00
	PICO-WBX-ADAPT	Pico wallbox adapter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

Pico
wireless control

Radio Powr Savr
wireless corner-mount
vacancy sensor

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



Manual On   Auto Off

Occupancy/Vacancy

Max: 100%   Max: 85%

High-end Trim/Tuning

Lighting Energy Savings*

45%

* Go to lutron.com/references for more information.
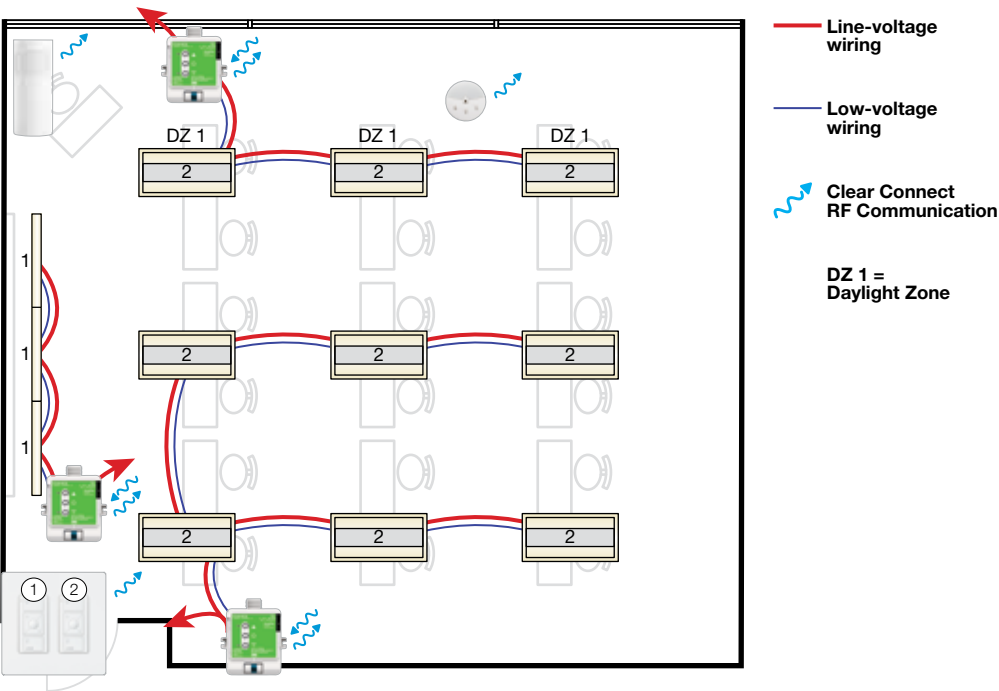
Line-voltage wiring

Low-voltage wiring

Clear Connect RF Communication

DZ 1 = Daylight Zone

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

Pico wireless control

Radio Powr Savr wireless corner-mount vacancy sensor and daylight sensor
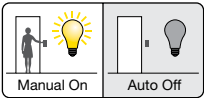
Control Functionality

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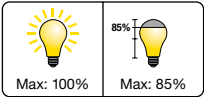
Occupant Exits:
All lights automatically turn off 15 minutes after all occupants exit.

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

Control Strategies

Manual On	Auto Off

Occupancy/Vacancy

Full On	Dim

Daylight Harvesting

Full On	Dim

Personal Dimming

Max: 100%	Max: 85%

High-end Trim/Tuning

Lighting Energy Savings*

60%

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

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-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.

Clear Connect Wireless

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.

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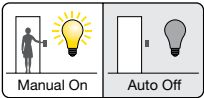
When Occupied:
Automatic: Overhead lights dim/brighten based on daylight availability. There are two perimeter daylight zones.

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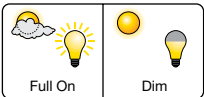
Occupant Exits:
All lights automatically turn off 15 minutes after all occupants exit.

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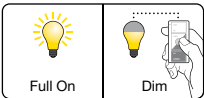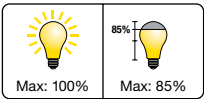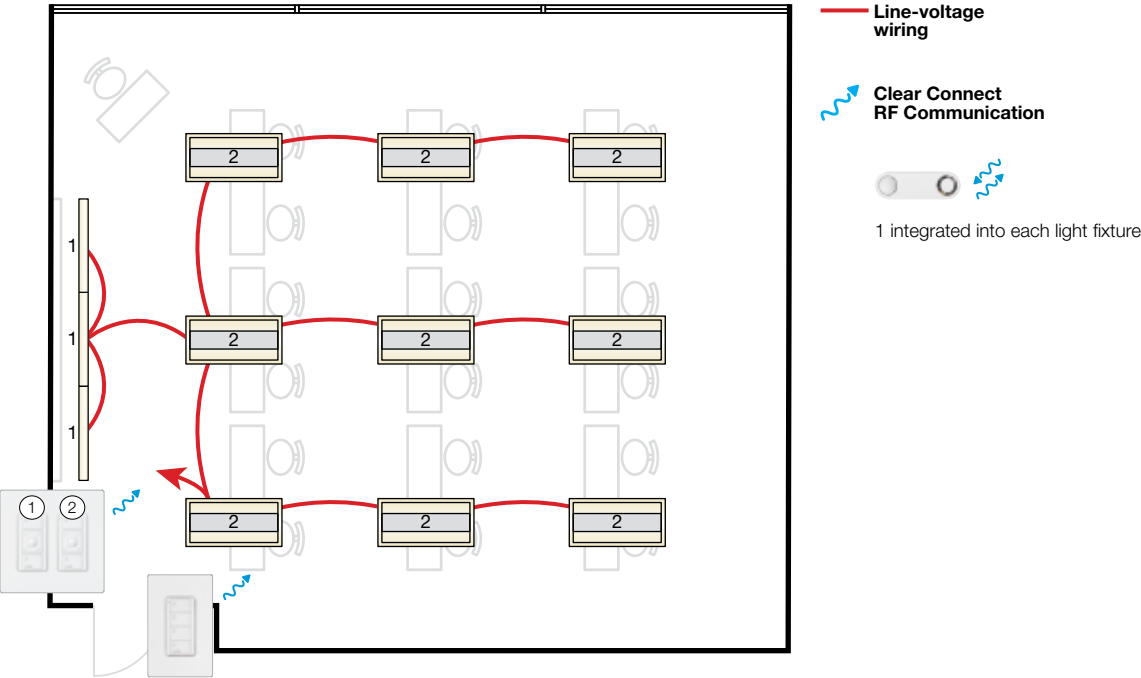
Control Strategies

Partial On   Auto Off
Occupancy/Vacancy

Full On   Dim
Daylight Harvesting

Full On   Dim
Personal Dimming

Max: 100%   Max: 85%
High-end Trim/Tuning

Scene 1   Scene 2
Scene Control

Lighting Energy Savings*

65%

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

Line-voltage wiring

Low-voltage wiring

Clear Connect RF Communication

DZ 1 & DZ 2 = Daylight Zones

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

Pico
wireless control

Radio Powr Savr
wireless corner-mount
vacancy sensor and
daylight sensor

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

Manual On   Auto Off
Occupancy/Vacancy

Full On   Dim
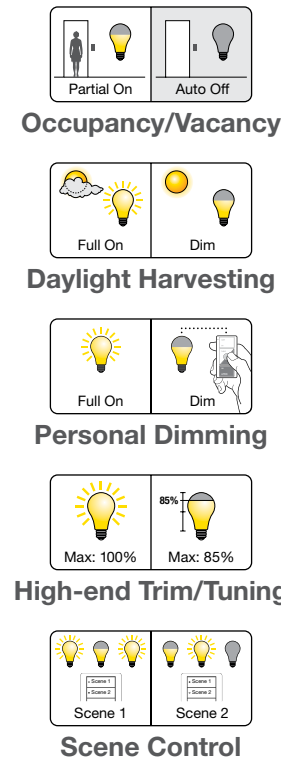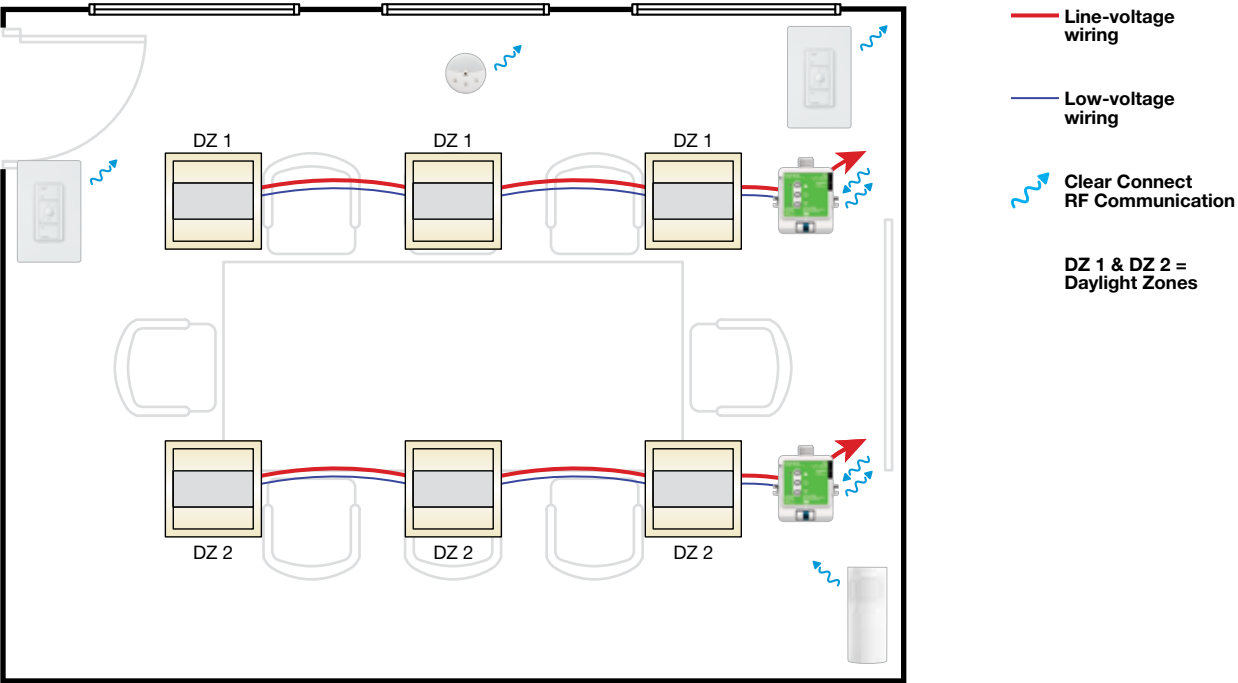**Daylight Harvesting**

Full On   Dim
Personal Dimming

Max: 100%   Max: 85%
High-end Trim/Tuning

Lighting Energy Savings*

60%

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

Line-voltage wiring

Clear Connect RF Communication

DZ 1 & DZ 2 = Daylight Zones

1 required for each light fixture

1 required for each light fixture

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

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

Visible System Components

Pico wireless 4-button scene control

Radio Powr Savr wireless corner-mount vacancy sensor and daylight sensor

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.
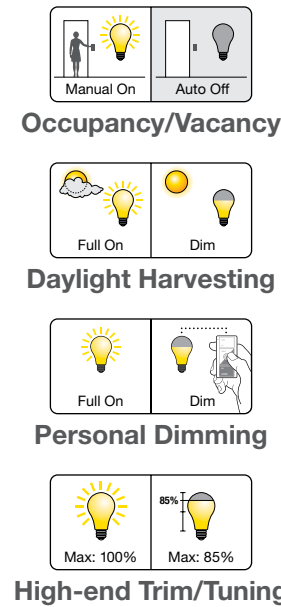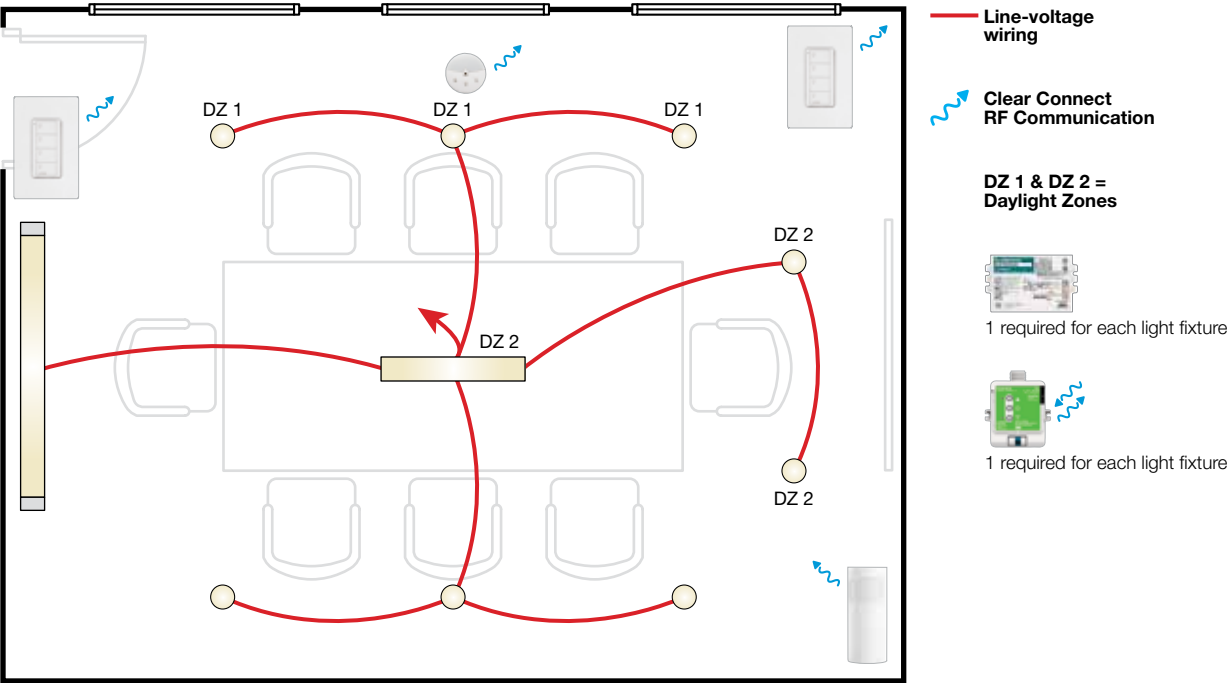
Control Strategies

Occupancy/Vacancy (Manual On / Auto Off)

Daylight Harvesting (Full On / Dim)

Personal Dimming (Full On / Dim)

High-end Trim/Tuning (Max: 100% / Max: 85%)

Scene Control (Scene 1 / Scene 2)

Lighting Energy Savings*

60%

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

| | Line-voltage wiring | | Low-voltage wiring | | Clear Connect RF Communication |

To emergency power

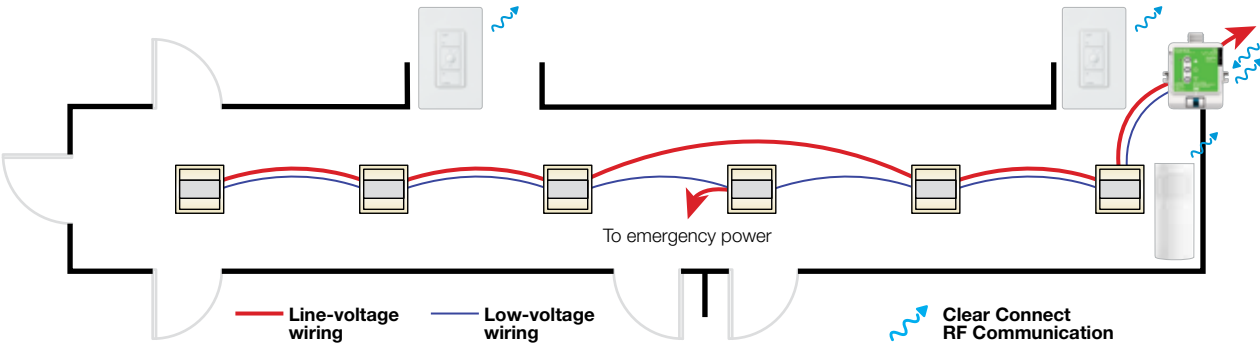| Symbol	Model Number	Description	Qty	List Price Each
	RMJS-8T-DV-B	PowPak dimming module with 0-10V	1	$ 180.00
	LRF2-OHLB-P-WH	Radio Powr Savr wireless hallway occupancy sensor	1	$ 105.00
	PJ2-3BRL-GWH-L01	Pico wireless 3-button with raise/lower control	2	$ 27.00
	PICO-WBX-ADAPT	Pico wallbox adapter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

| Auto On | Partial Off |

Occupancy/Vacancy

| Max: 100% | Max: 85% |
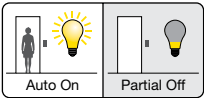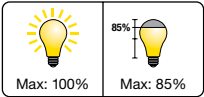
High-end Trim/Tuning

Lighting Energy Savings*

60%

Code Notes: For non-egress corridors, set the minimum light level to full off.
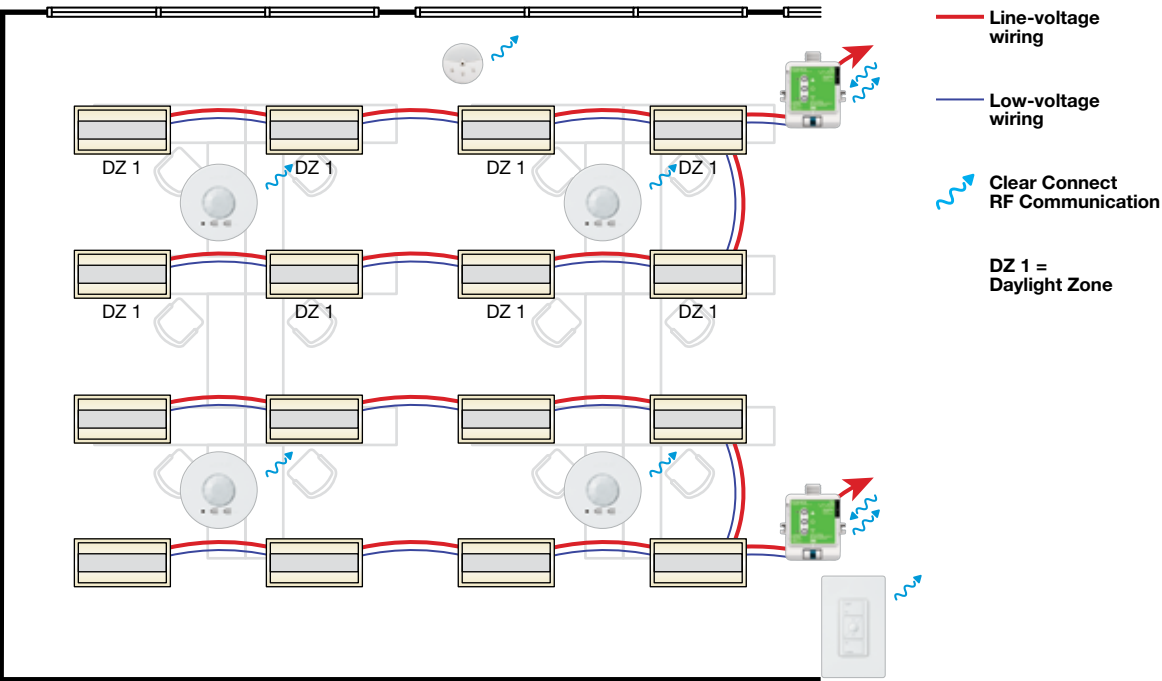
* Go to lutron.com/references for more information.

	Line-voltage wiring
	Low-voltage wiring
	Clear Connect RF Communication

DZ 1 = Daylight Zone

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-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	1	$ 27.00
	PICO-WBX-ADAPT	Pico wallbox adapter	1	$ 9.50

Code Notes: For non-daylight open offices, 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

Pico
wireless control

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

Control Functionality

Occupant Enters:
All lights 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 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

Partial On	Auto Off

Occupancy/Vacancy

Full On	Dim

Daylight Harvesting

Max: 100%	Max: 85%

High-end Trim/Tuning

Lighting Energy Savings*

50%

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

— Line-voltage
  wiring

Clear Connect
RF Communication

1 integrated into each light fixture

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.

LUTRON Clear Connect Wireless

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.

Visible System Components

Pico
wireless control

Integral fixture
control with
sensor

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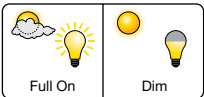
Occupant Exits:
Each individual light automatically turns
off 15 minutes after all occupants exit
fixture proximity.

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

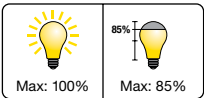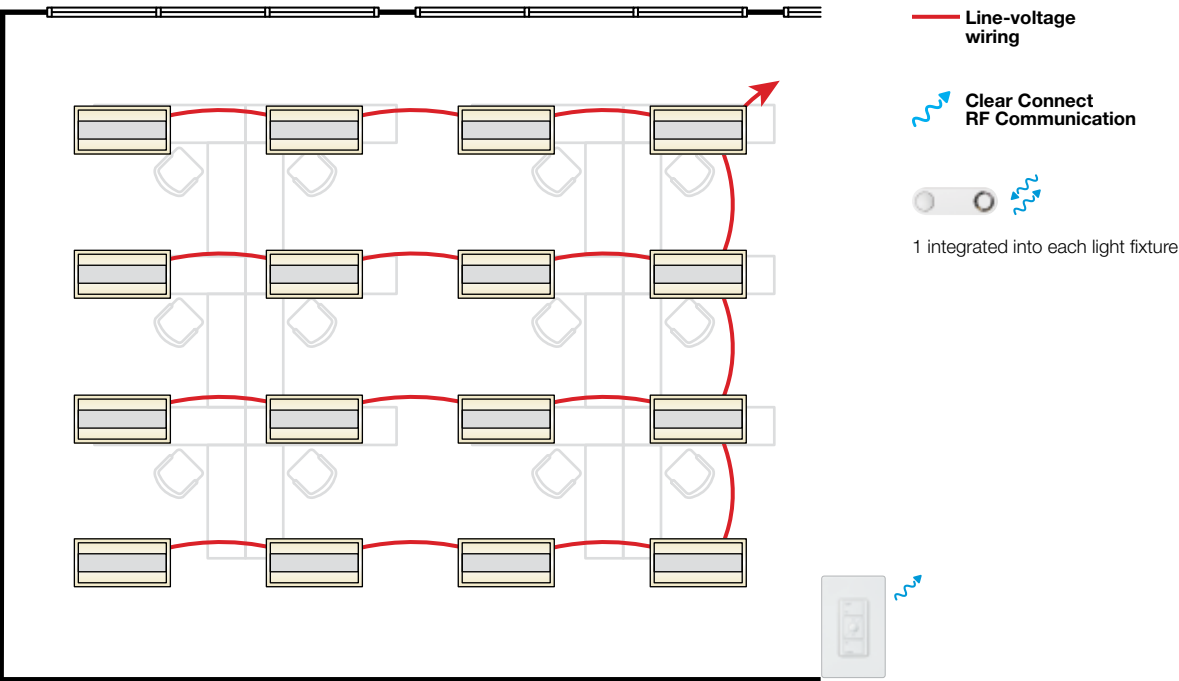## Control Strategies

Partial On	Auto Off

Occupancy/Vacancy

Full On	Dim

Daylight Harvesting

Full On	Dim

Personal Dimming

Max: 100%	Max: 85%

High-end Trim/Tuning

Lighting Energy Savings*

60%

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

Line-voltage wiring

Low-voltage wiring

Clear Connect RF Communication

DZ 1 & DZ 2 = Daylight Zones

1 required for each fixture control

Symbol	Model Number	Description	Qty	List Price Each
	FCJS-010	Wireless fixture control with 0-10V	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

Pico
wireless control

PowPak
fixture sensor

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.

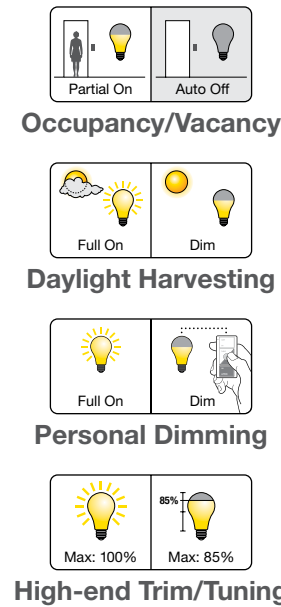Manual: Occupant uses wall dimmer to set desired light levels for all lights.

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.
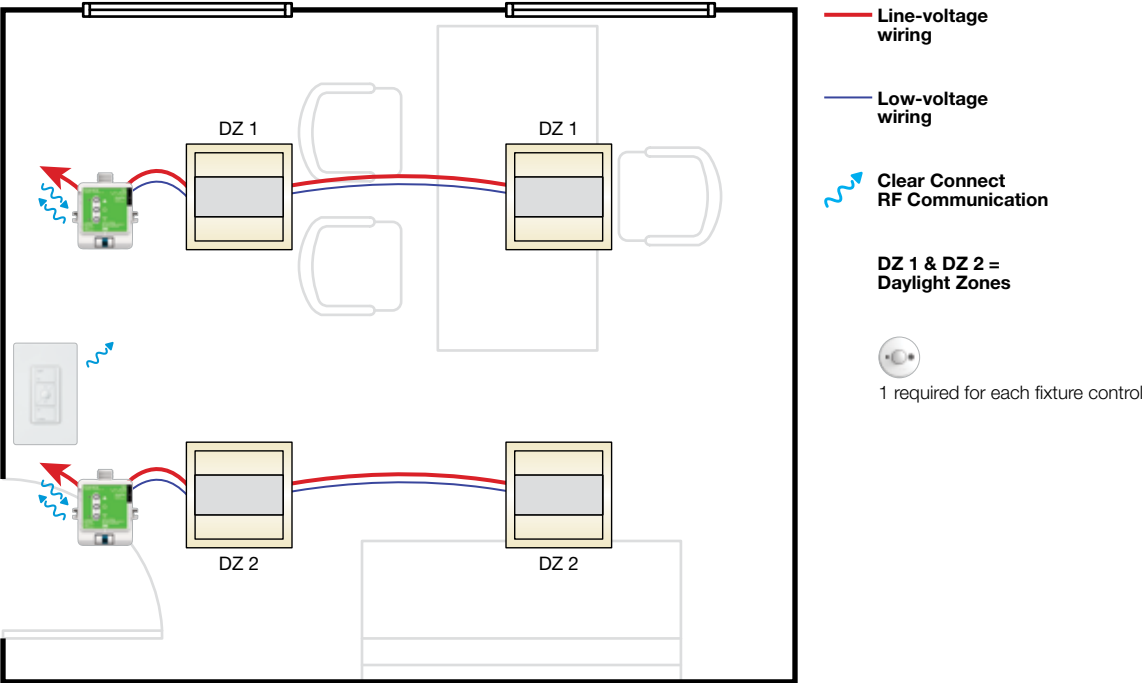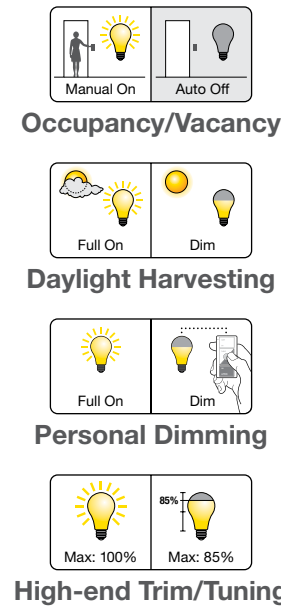
Control Strategies

Manual On | Auto Off
Occupancy/Vacancy

Full On | Dim
Daylight Harvesting

Full On | Dim
Personal Dimming

Max: 100% | Max: 85%
High-end Trim/Tuning

Lighting Energy Savings*

60%

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

Line-voltage wiring

Low-voltage wiring

Clear Connect RF Communication

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

Pico
wireless control

Radio Powr Savr
wireless ceiling-mount
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.

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.
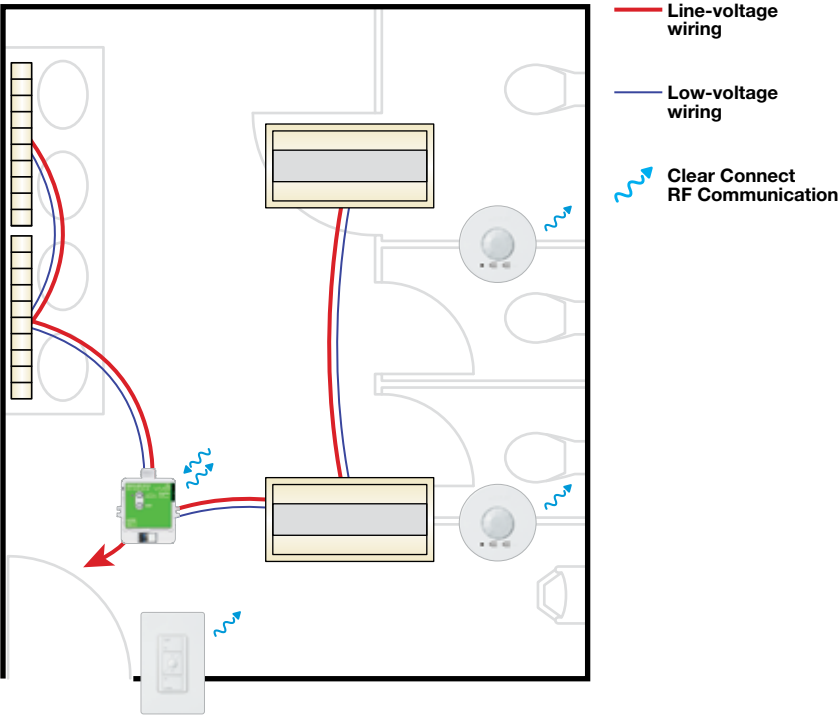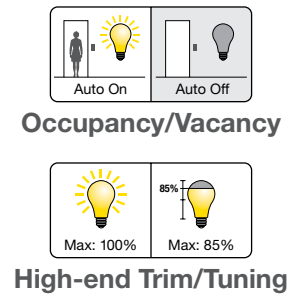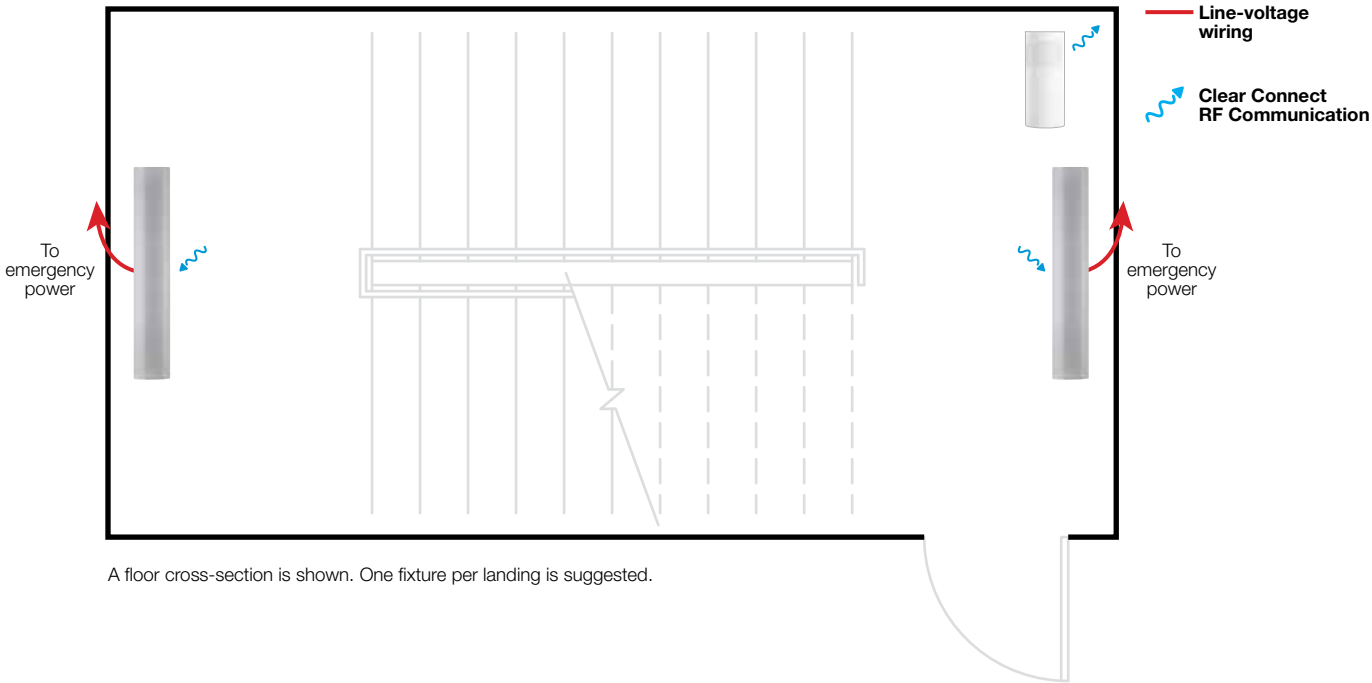
Control Strategies

Auto On | Auto Off

Occupancy/Vacancy

Max: 100% | Max: 85%

High-end Trim/Tuning

Lighting Energy Savings*

50%

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

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

Line-voltage wiring

Clear Connect RF Communication

To emergency power

To emergency power

Symbol	Model Number	Description	Qty	List Price Each
	FXSWLX4H	Lutron 4 ft. stairwell LED fixture	2 (per floor)	$ 720.00
	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:
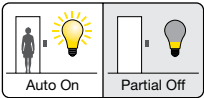All lights automatically turn on to maximum light level. Maximum light level is set to 80%.

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

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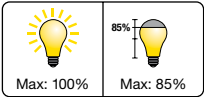Lighting connected to emergency power turns on to full output.

Control Strategies

Auto On | Partial Off

Occupancy/Vacancy

Max: 100% | Max: 85%

High-end Trim/Tuning

Lighting Energy Savings*

80%

Code Notes: For non-egress stairwells, see the recommended solution and set the minimum light level to full off.
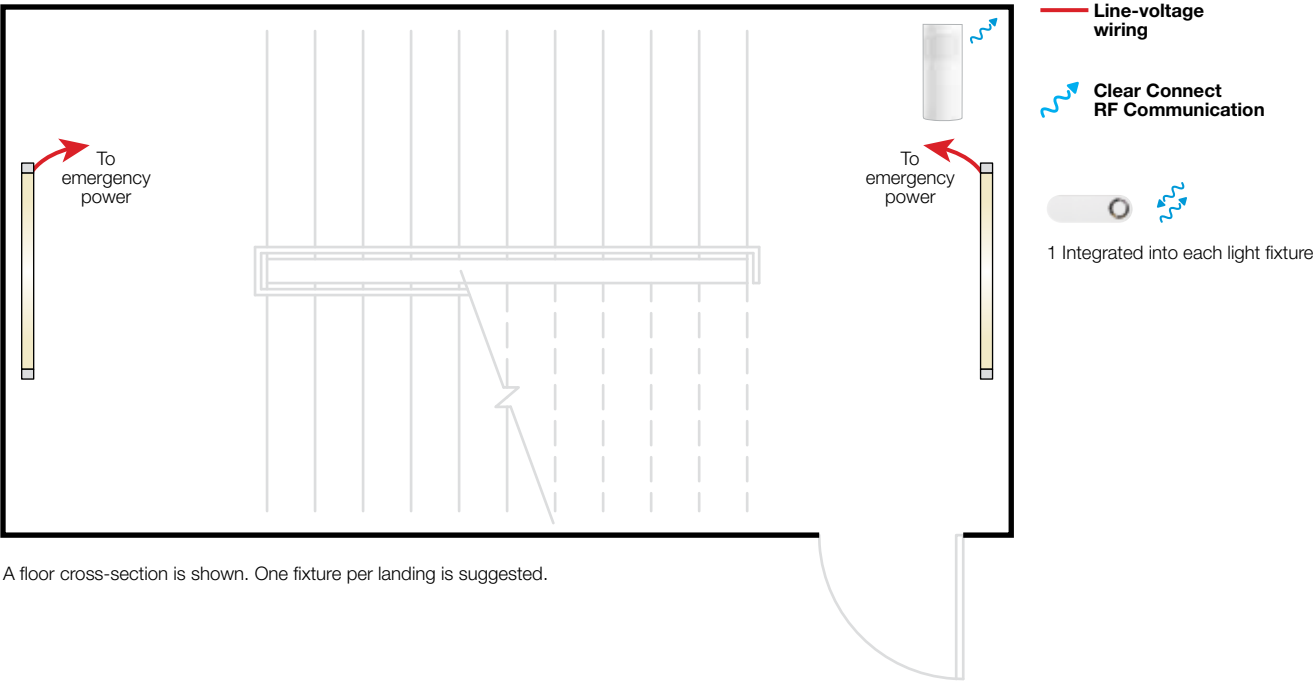
* Go to lutron.com/references for more information.

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

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	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.

Clear Connect Wireless

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.
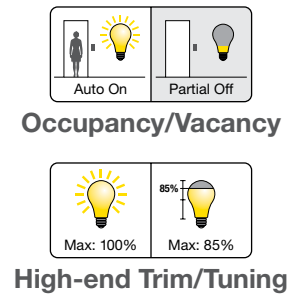
Visible System Components

Radio Powr Savr wireless corner-mount occupancy sensor

Integral fixture control

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.

Control Strategies

Auto On   Partial Off

Occupancy/Vacancy

Max: 100%   Max: 85%

High-end Trim/Tuning

Lighting Energy Savings*

80%

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

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

Contact Lutron
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Customer Assistance
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Email: support@lutron.com
Phone: 1.844.LUTRON1 (588.7661) — includes 24/7 technical support

LUTRON