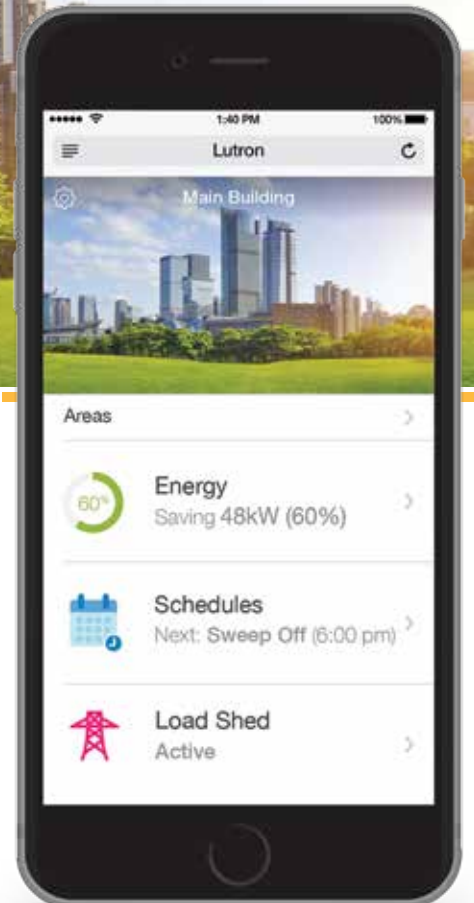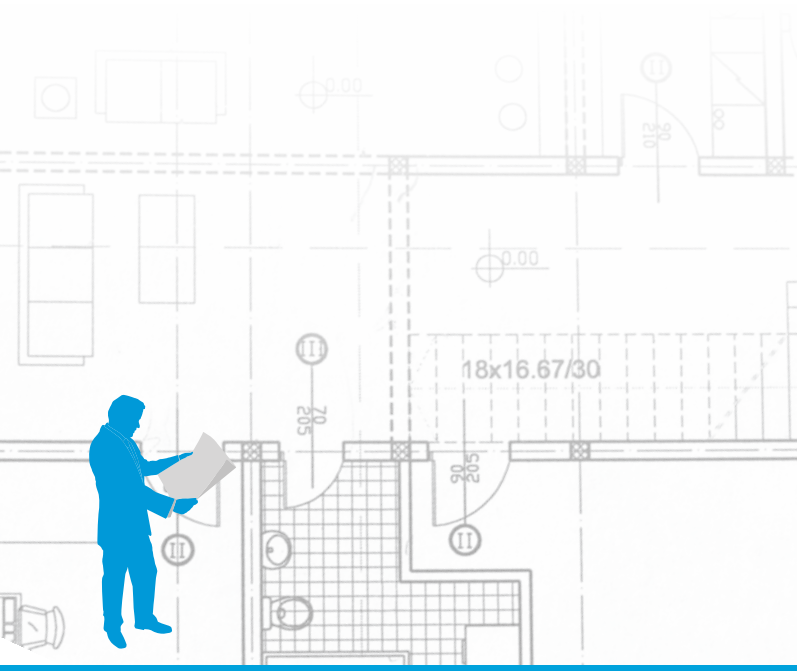# VIVE™

## Simple and scalable
## lighting control

DESIGN

INSTALL

MAINTAIN

## Flexible control every step of the way

**Introducing a revolutionary wireless lighting control solution for new and existing commercial buildings.**

LUTRON®

## DESIGN

### The flexibility you need to design your building

- **Build your system from a full suite of products —** specify a simple occupancy sensor solution, or design a fully integrated lighting management system using the same suite of products

- **Combine individual fixture control and area control —** Vive wireless solutions do not limit your options

- **Easily match controls to the fixture package —** switching, 0-10V, phase control, EcoSystem®, or any combination

- **Expand the system at any time —** add control options, add new areas, easily upgrade software to add new features

- **Guaranteed reliability and performance —** provide flicker-free dimming down to 0.1% with Lutron Hi-lume® Premier LED drivers. This end-to-end solution delivers ultra-reliable operation and high performance

## INSTALL

### Wireless simplifies installation and reduces callbacks

- **Less wiring makes installation faster —** reduce labor time by up to 70%[1]

- **Setup is as simple as pushing a button or using your smart device —** no manufacturer commissioning required, further reducing time and labor cost (The Lutron services team is always available if you want some additional support)

- **Start small and expand at any time —** with no new wiring — to meet budget requirements and changing space needs

- **Eliminate callbacks —** Lutron's proven reliability helps you stay within budget and reduces your time on the job

## MAINTAIN

### Maximize productivity and building performance

- **Monitor, adjust, and manage your system from any smart device —** easily adjust the lighting control to accommodate building churn, improve occupant comfort, and enhance energy-efficiency

- **Energy savings —** lighting uses more electricity than any other building system. Lutron solutions can save up to 60%[2] or more of that lighting energy

- **Minimize down time —** wireless controls install quickly to minimize disruption to building occupants

- **Expand capability —** add new controls or upgrade software at any time without replacing the existing system

- **Simple integration —** using BACnet protocol, connect with other building systems at the time of initial installation or whenever you expand the system
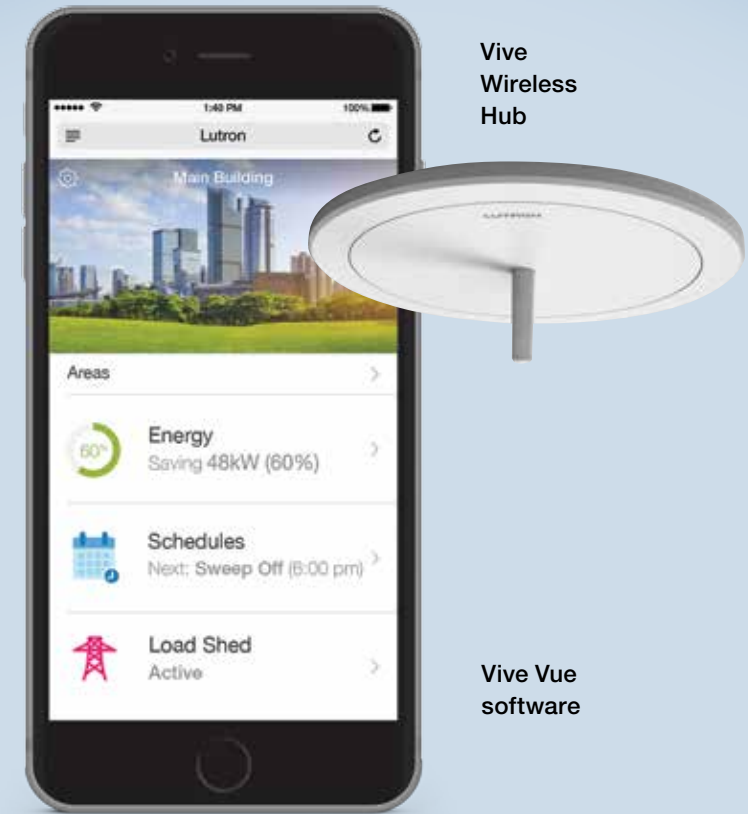
Vive
Wireless
Hub

Vive Vue
software

### Vive wireless solutions give you the right solution now and for years to come

- Any budget
- Area, fixture and sensor controls
- Meet latest energy codes and standards
- No factory setup required

**When you choose Lutron solutions, you can be confident that the system just works, and it will keep working**
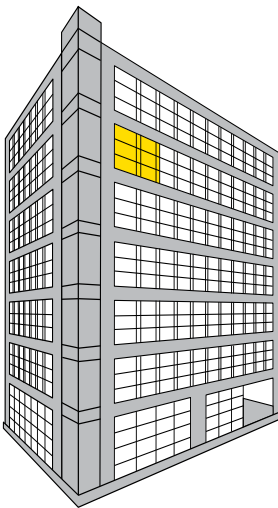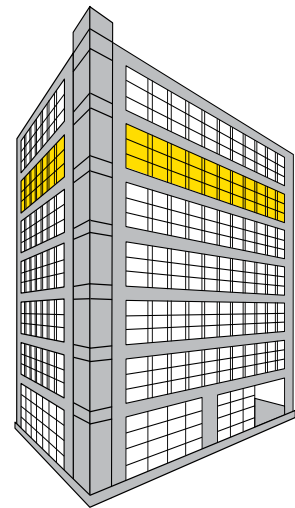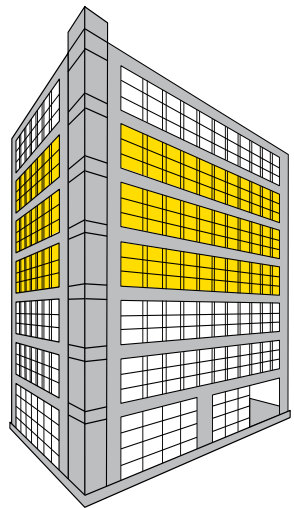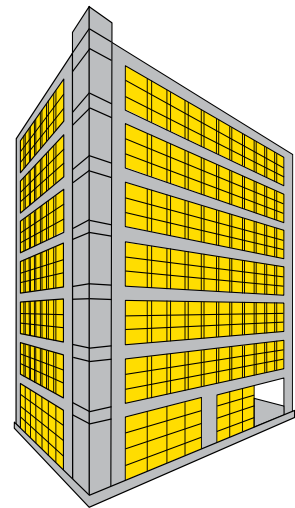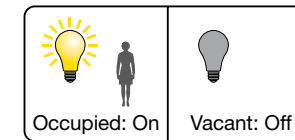
# Scalable solutions — start small and grow

Vive wireless solutions offer a multi-strategy approach that accommodates your budget and performance needs now, and for the future of your building.

## 1 Single office space

Start by adding control in a single space and expand as budgets and occupant schedules allow.

## 2 Single floor

Expand to new areas or an entire floor at any time without reprogramming or replacing existing equipment.

## 3 Multiple floors

Duplicate the success of one floor across other floors as your business expands or tenants change. Control can be independent on each floor, or linked via Vive wireless hubs.

## 4 Entire building

Vive offers seamless integration to other building management systems to control every light in your building.

**Single office space**

**Single floor**

**Multiple floors**

**Entire building**

---

# Energy-saving control strategies

Combine lighting control strategies to maximize efficiency

### What is the savings opportunity?
Lighting represents 38%[3] of electricity use in commercial buildings. Lutron solutions can save 60%[3] or more lighting energy.
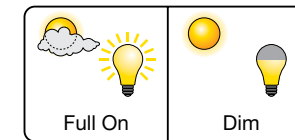
**Potential savings**

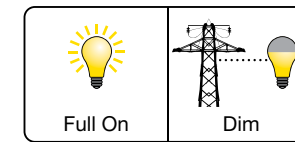| Icons | Strategy | Savings |
|---|---|---|
| Occupied: On / Vacant: Off | **Occupancy/vacancy sensing** turns lights on when occupants are in a space and off when they vacate the space. | 20−60% Lighting[4] |
| Full On / Dim | **Daylight harvesting** dims electric lights when daylight is available to light the space. | 25−60% Lighting[5] |
| 7am: Dim / 7pm: Off | **Scheduling** provides pre-programmed changes in light levels based on time of day. | 10−20% Lighting[6] |
| Full On / Dim | **Demand response** automatically reduces lighting loads during peak electricity usage times. | 30−50% Peak Period[7] |
| Appliance On / Appliance Off | **Plug load control** automatically turns off loads after occupants leave a space. | 15−50% Controlled Load[8] |
| Max: 100% / Max: 80% | **High-end trim** sets the maximum light level based on customer requirements in each space. | 10−30% Lighting[9] |
| Full On / Dim | **Personal dimming control** gives occupants the ability to adjust the light level. | 10−20% Lighting[10] |
| Heating / Cooling | **HVAC integration** controls heating, ventilation, and air conditioning systems through contact closure, or BACnet protocol. | 5−15% HVAC[11] |
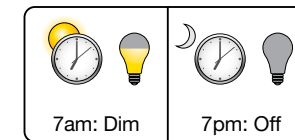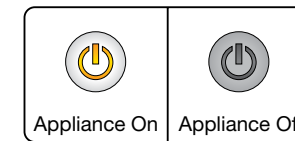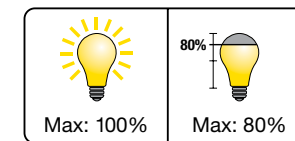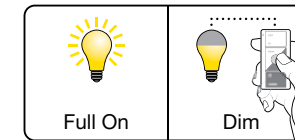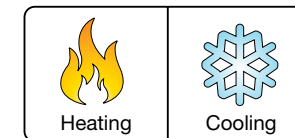
## Wireless controls and sensors

## Simple to use software

**Remotes**

**Occupancy and daylight sensors**

**Lighting controllers**

**Plug load controllers**

### Centralized control and integration

Clear Connect® Wireless

Wi Fi

**Vive wireless hub**

Wired/ Ethernet

**Demand Response**

**BACnet Integration**
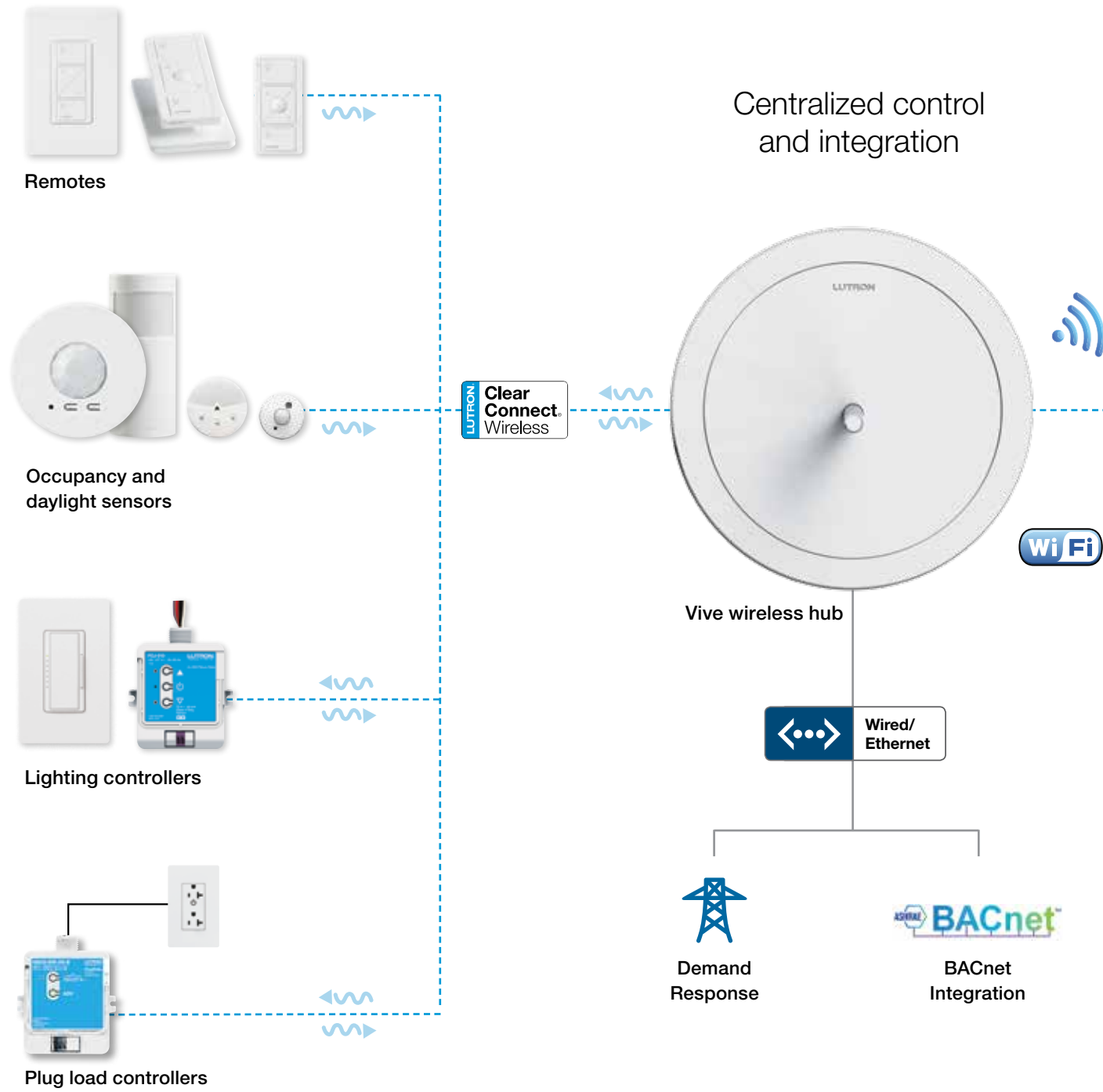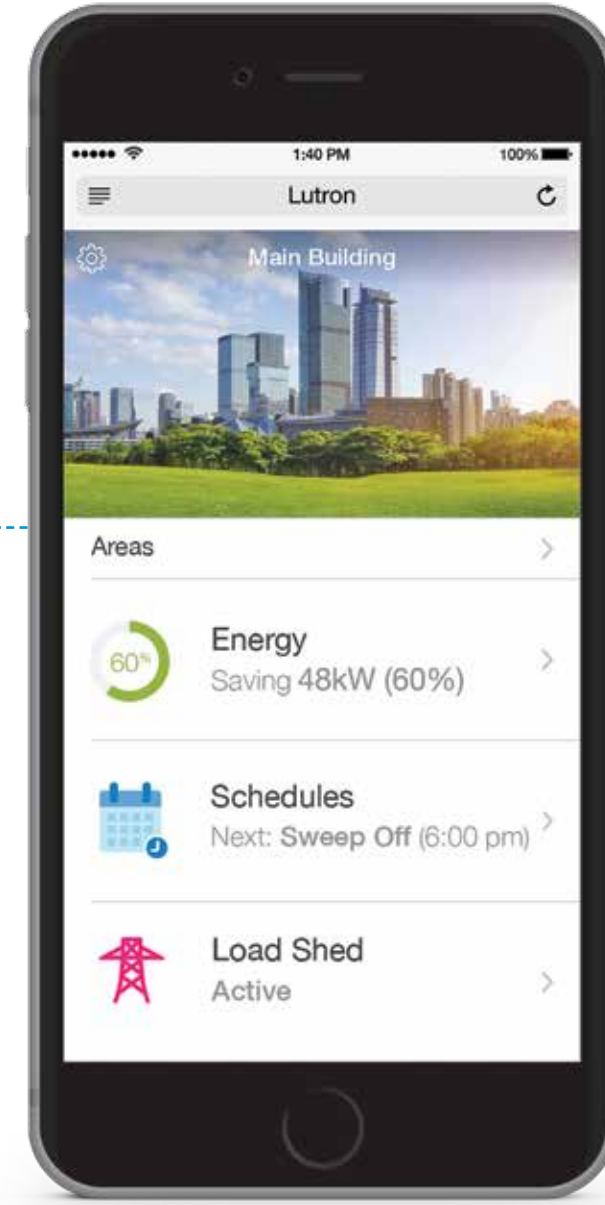
**Vive Vue software**

### Communication protocols

Clear Connect Wireless — **Communicate via RF to control components**

Wi Fi — **Communicate via WiFi to smart devices**

— **Communicate with wired Ethernet to Vive Hub**

# The right control in the right space

The Vive product family lets you personalize control to each space in your building without locking you into more or less control than you need

## Simple switching

### Restroom
Occupancy sensors control all lights together by switching lights on and off in response to room occupancy.

Switch | Occupancy Sensor

## Area dimming and sensing

### Private office
Dim a group of lights together while also providing manual control. Save additional energy with daylight harvesting.

Dimming Module | Occupancy Sensor | Daylight Sensor | Pico remote

## Individual fixture dimming and sensing

### Open office
Maximize energy savings and give each occupant personal dimming control to increase comfort and enhance productivity.

Fixture Control | Fixture sensor | Pico remote
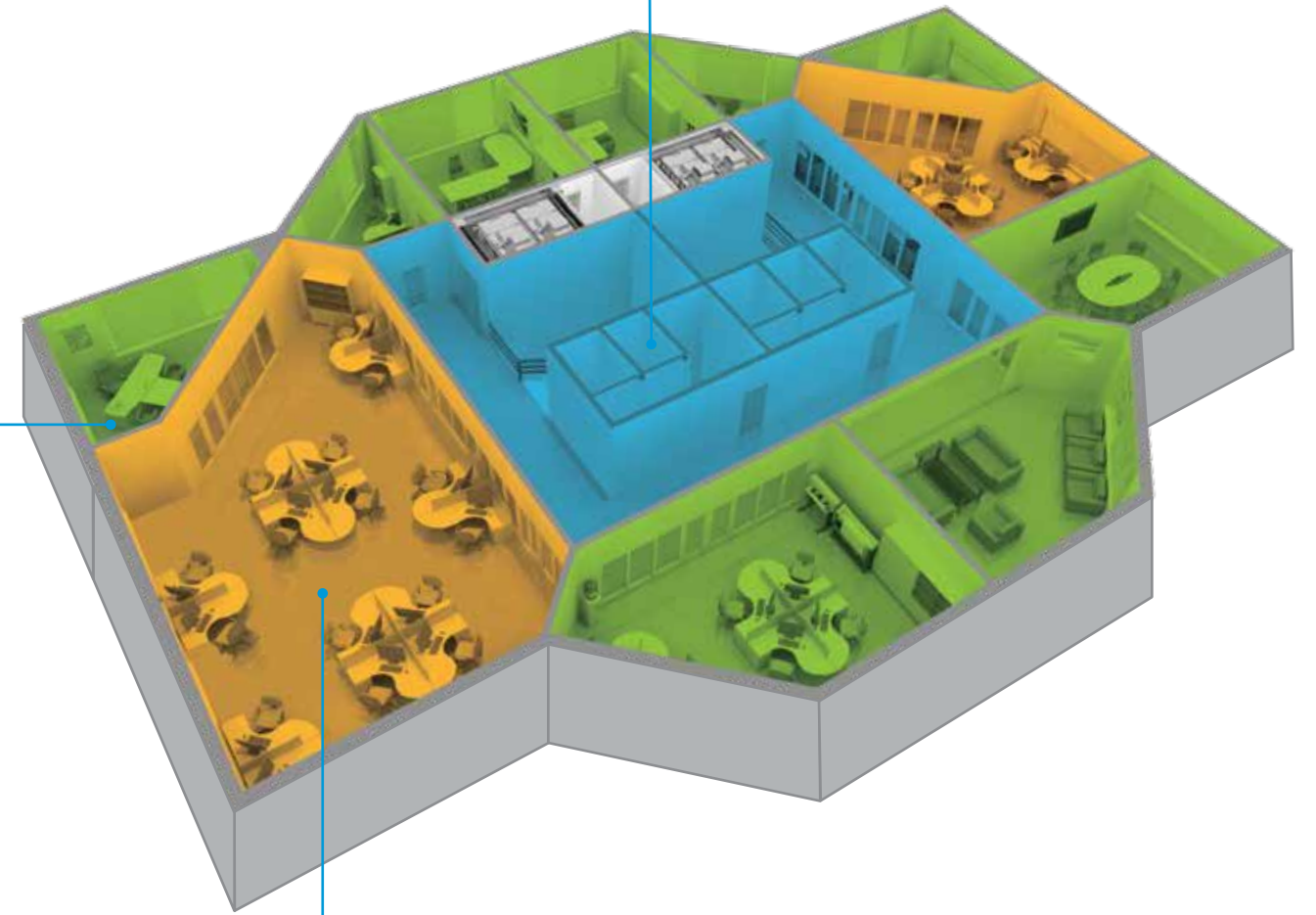
### Vive wireless solutions — Choose any load and control type.

**Any control type**

- High performance dimming with Lutron Hi-lume® Ecosystem

- Other control types
  - 0-10V
  - Phase Control
  - Switching
  - CCO

**Any load type**

| LED | Incandescent/ halogen | CFL | Fluorescent | Magnetic low voltage | Electronic low voltage |

# Simple retrofit — installs 70%[1] faster than wired systems

Vive wireless solutions reduce installation time and cost regardless of what space or solution you choose.
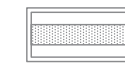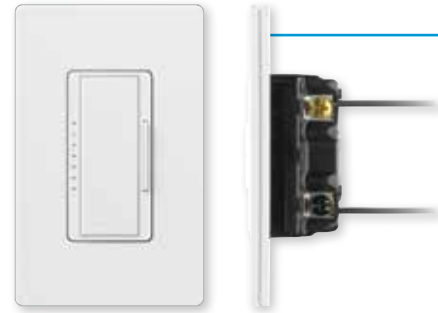
## Wallbox mount

- Replace an existing switch in a standard wallbox to control a group of lights
- No new wiring required – works with the existing wiring
- Switching and dimming options available
- Communicates wirelessly to sensors and remotes

**Wireless switch/dimmer**

## Ceiling mount

- PowPak® modules mount on a standard junction box in the ceiling to control a group of lights
- Saves installation time by eliminating wiring down through walls
- Switching and dimming options available
- Communicates wirelessly to sensors and remotes

**PowPak with J-box**
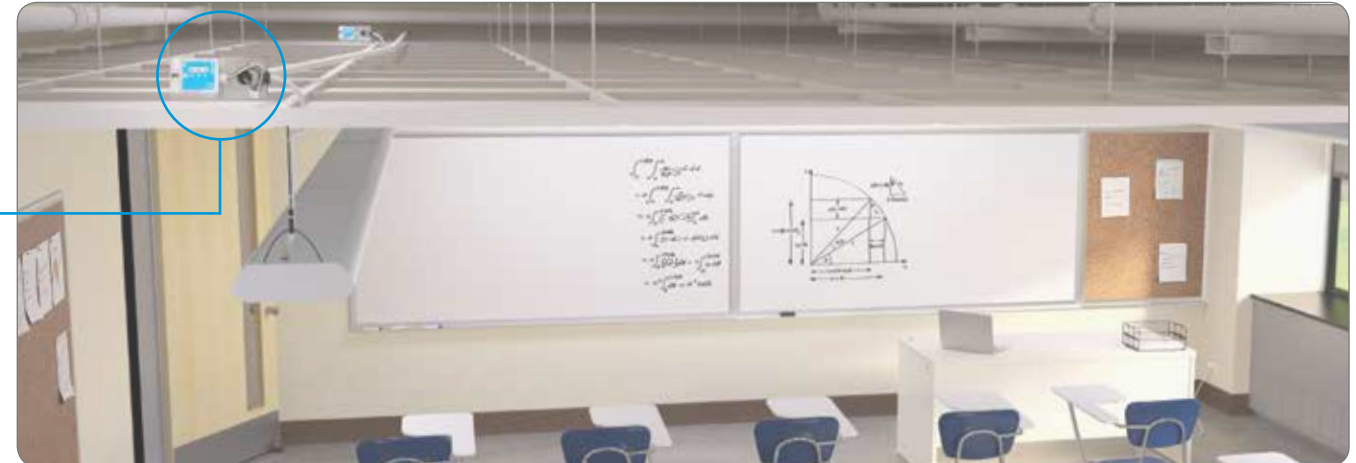
## Fixture mount

- Simple to design and estimate—just count the fixtures
- PowPak wireless fixture control installs on each fixture
- No additional wiring
    - Works with existing high voltage wiring, regardless of room layout
    - No new wiring between fixtures
- Provides personal control for each occupant to maximize comfort and energy savings
- Communicates wirelessly to sensors and remotes
- Works with any 0-10V or EcoSystem driver or ballast
- High-performance dimming with Lutron Hi-lume® EcoSystem drivers

**PowPak wireless fixture control**

## Wallbox mount

## Ceiling mount

## Fixture mount

## Simple setup and programming options with the Vive wireless hub

### Mobile phone setup

Using Vive Vue software on any smart device you can wirelessly connect system controls and program system settings—no ladder required. Lutron's patent pending RF signal strength detection automatically finds nearby devices making job setup faster.

**1** **Press and hold on wireless device**

**2** **Automated fixture identification**
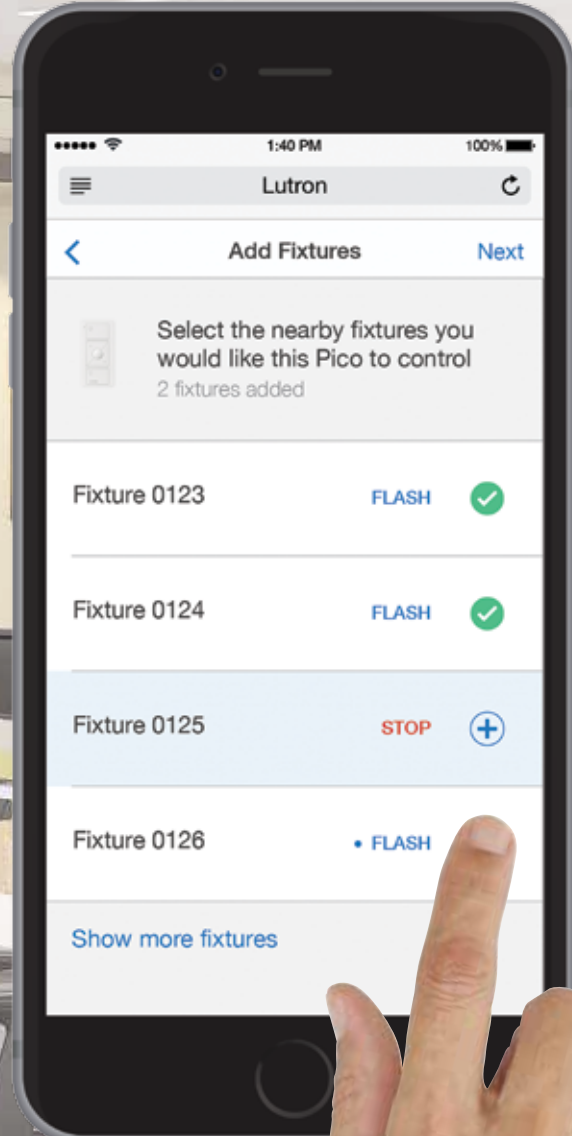
Lutron patent pending technology automatically finds and sorts the wireless devices closest to the control

1:40 PM    100%

Lutron

**Add Fixtures**    Next

Select the nearby fixtures you would like this Pico to control
2 fixtures added

Fixture 0123    FLASH ✓

Fixture 0124    FLASH ✓

Fixture 0125    STOP ⊕

Fixture 0126    • FLASH

Show more fixtures

## For systems without a Vive wireless hub

### Push button set up

Use simple button-press programming to select and associate wireless devices—it's as easy as setting a station on your car radio.
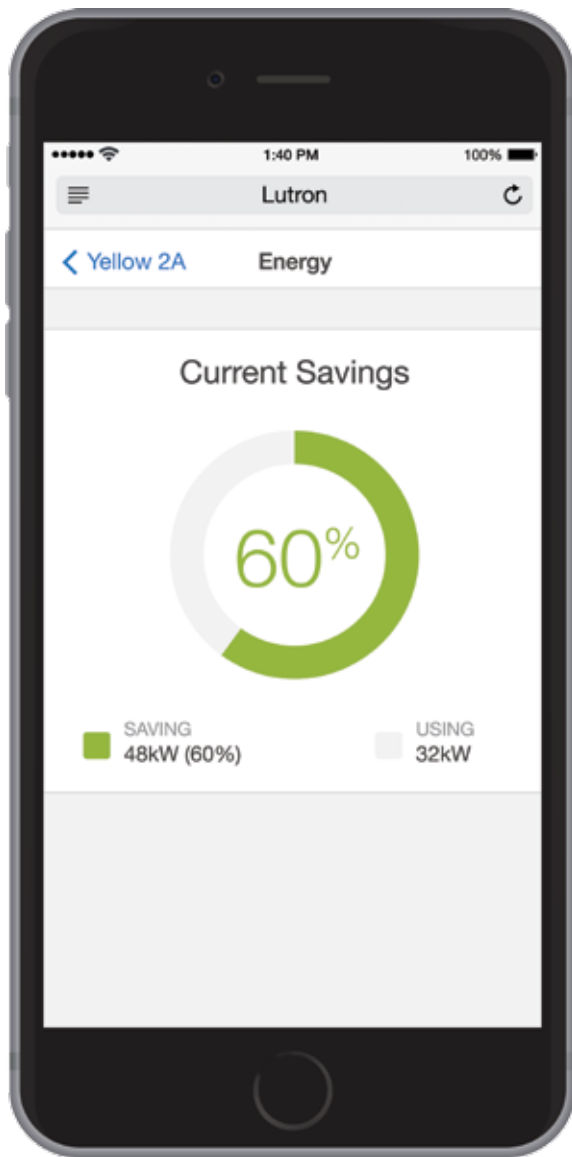
Wireless dimmer

**Press and hold for 6 seconds**

Occupancy sensor

**Press and hold for 6 seconds**

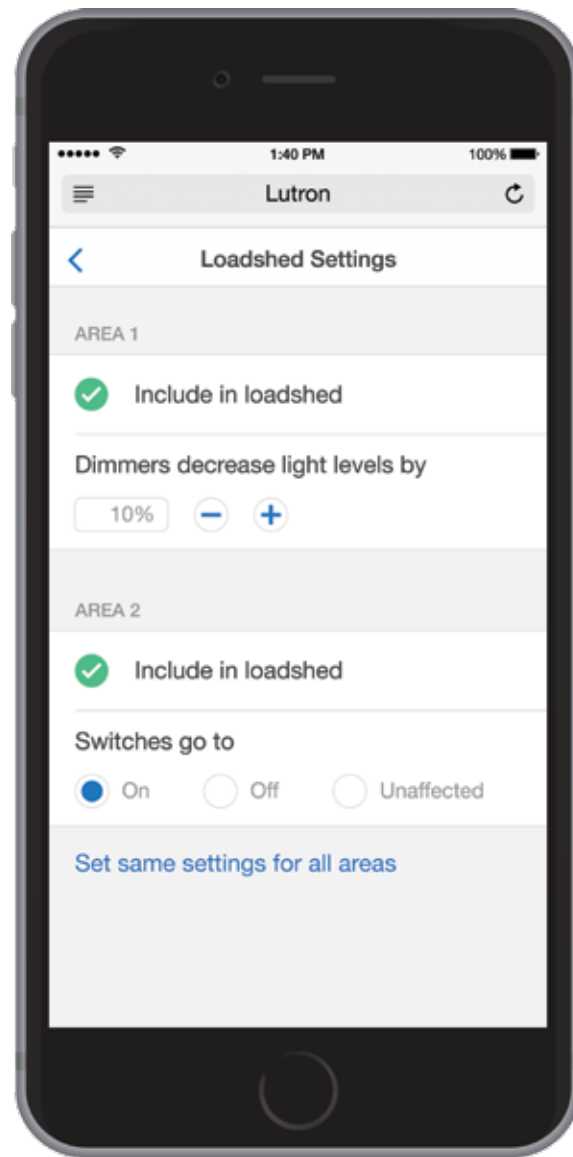**It works! Sensor now talks to the wireless dimmer**

## Energy reporting

Quickly view and display energy usage information to drive decision making and demonstrate savings.
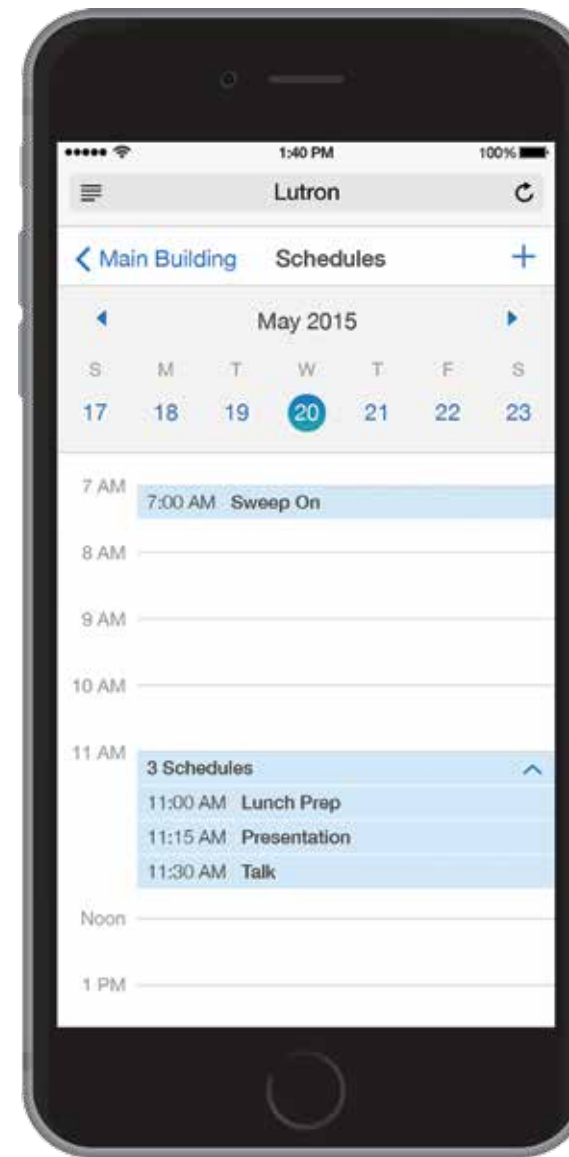
## Load shed

Easily set lighting reduction levels that automatically respond during peak electricity usage times.

## Schedules

Use a simple, weekly calendar to automatically adjust lights based on time of day.

### Energy reporting phone screen

1:40 PM    Lutron

‹ Yellow 2A    Energy

Current Savings

**60%**

SAVING 48kW (60%)    USING 32kW

### Load shed phone screen

1:40 PM    Lutron

‹ Loadshed Settings

AREA 1

✓ Include in loadshed

Dimmers decrease light levels by

10%  —  +

AREA 2

✓ Include in loadshed

Switches go to

● On    ○ Off    ○ Unaffected

Set same settings for all areas

### Schedules phone screen

1:40 PM    Lutron

‹ Main Building    Schedules    +

◀ May 2015 ▶

S  M  T  W  T  F  S
17 18 19 20 21 22 23

7 AM    7:00 AM  Sweep On
8 AM
9 AM
10 AM
11 AM    3 Schedules
         11:00 AM  Lunch Prep
         11:15 AM  Presentation
         11:30 AM  Talk
Noon
1 PM

## Seamlessly integrate with your building system

**ASHRAE BACnet™**

The BACnet/IP protocol is the primary means of integration. BACnet is embedded or native in the Vive wireless hub, which means no external interfaces or gateways are required in order to communicate with other systems.

➕ **Building/Energy Management Systems (BMS/EMS)**

**HVAC**

💻 **IT**

💻 **Audio & Video**

📊 **Energy Dashboards and Analytics Packages**

## Clear Connect® wireless technology

All Lutron wireless products utilize Lutron patented Clear Connect wireless technology which operates in an uncongested radio frequency band. The result is ultra-reliable communication and smooth dimming performance with no flicker or delay. Other devices will not interfere with the Lutron lighting control system.

### Clear Connect

**434 MHz: Lutron Clear Connect wireless technology**

Lutron devices operate in an uncongested frequency band, providing ultra-reliable operation

LUTRON **Clear Connect®** Wireless

### "Other" frequency bands'
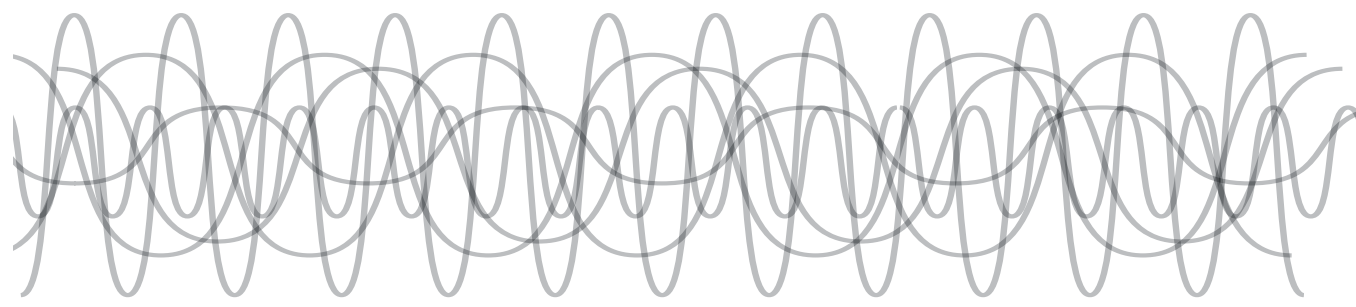
**2.4 GHz:** Cordless phones  |  Bluetooth devices  |  Wireless security cameras

Other devices operate in congested frequency bands, creating a high potential for wireless interference

## XCT sensing technology

Lutron's occupancy sensing won't leave occupants in the dark, eliminating callbacks

- Lutron sensors provide exceptional prevention of false-ons and false-offs

- Superior sensitivity—recognizes the difference between fine human motion and background noise

**Major Motion**

Person walking 3 feet

**Minor Motion**

Movements like extending our arms

**Fine Motion**

Small movements like flipping pages of a book

**No False-on**

Lights stay off when room is unoccupied

# Lutron service and support
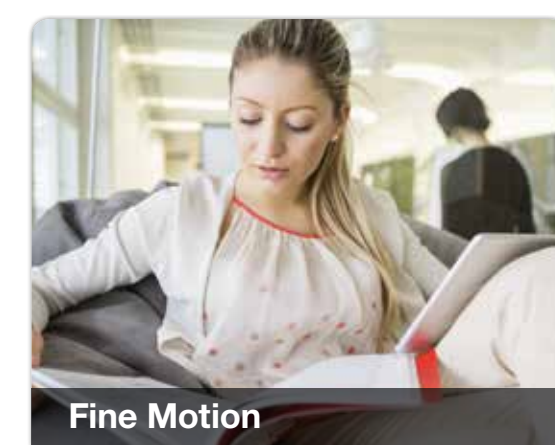
## Setup the system yourself, or choose the right mix of support services.

Lutron also offers a variety of flexible, scalable support options to meet the needs of your project and your budget.



### Option 1

**Do it yourself**

Vive is designed to make installation and setup easy. Instructions are included with the product, and comprehensive online help is available 24/7 at Lutron.com/Vive. Simple-to-follow videos and product guides are just a click away.

### Option 2

**Get a little help**

If you're looking for some extra peace of mind, Lutron Services can be purchased in flexible blocks of time to provide the right kind of support for your project.

The Services team can provide training, walk you through setup for a specific project area, answer any other questions you have, or help finish setup by closing punch list items.

Choose from remote (online or phone-based) setup support, or have a Lutron Service Technician come to your site.

### Option 3

**Leave the setup to us**

If you prefer, the Lutron Services Team can execute the full system setup.

Both remote and onsite setup services are available. Remote startup is generally a lower cost option and requires less lead time.

· **Remote setup** — a designated member of your team works with an off-site Lutron certified remote technician.

· **Onsite setup** — a Lutron certified service technician will perform the complete system setup at your project site

## Post-startup operations & maintenance services

Create peace of mind for your facilities team. Post-startup services can help ensure that your system continues to operate as designed for the life of the project.

### Post-startup Operations Services

As your space, staff, and business changes over time, your lighting control system changes too. Plan ahead by purchasing post-startup services for ongoing support.

· Customer-Site Solution Training

· System Optimization

· Remote & Onsite Programming adjustments

### Vive Warranty information

Vive wireless solutions are all covered by a one-year parts warranty. Additional Warranty and Technology Support Options are available to meet your project needs. See the options below.

| Support Options | Limited Warranty | Silver | Gold | Platinum |
|---|---|---|---|---|
| Maximum coverage duration | 2 Years | 1-10 Years | 1-10 Years | 1-10 Years |
| 100% Replacement Parts | • | • | • | • |
| Diagnostic Labor— First Available Response | • | • | | |
| Diagnostic Labor— 72-Hour Response | | | • | |
| Diagnostic Labor — 24-Hour Response | | | | • |
| Annual Preventive Maintenance Visit | | | • | • |

**If you're not sure which option is best Lutron can help.**

Contact your local sales representative to discuss your project.

**For more information:**  www.lutron.com/Vive  |  Vive Design Guide (PN# 367-2620)

# Sources

1   The savings are based on actual lighting usage for the full year of 2009 (annual average lighting power of 0.396 watts per square foot) compared to the installed code-compliant lighting power of 1.28 watts per square foot. The dollars are calculated using a New York City commercial electricity rate of $0.18 per kWh (source: ConEdison). CO2 reduction is based on 1.9 pounds of CO2 prevented per kWh saved (source: Weighted average of fossil fuel energy sources from page 2 of a U.S. Department of Energy carbon dioxide emissions report in July 2000).

2   Compared with manual (non-automated) controls, up to 60% lighting energy savings is possible on projects that utilize all of the lighting control strategies (occupancy sensing, high-end trim, personal control and daylight harvesting). Actual energy savings may vary, depending on prior occupant usage, among other factors

3   Energy Information Administration, 2003 Commercial Buildings Energy Consumption Survey, released September 2008.

4   VonNieda B, Maniccia D, & Tweed A. 2000. An analysis of the energy and cost savings potential of occupancy sensors for commercial lighting systems. Proceedings of the Illuminating Engineering Society. Paper #43.

5   Reinhart CF. 2002. Effects of interior design on the daylight availability in open plan offices. Study of the American Commission for an Energy Efficient Environment (ACE) Conference Proceedings. To achieve maximum lighting savings, automated shades are utilized.

6   Energy savings estimated based on 50% reduction of after-hours lighting energy waste. Source: VonNieda B, Maniccia D, & Tweed A. 2000. An analysis of the energy and cost savings potential of occupancy sensors for commercial lighting systems. Proceedings of the Illuminating Engineering Society. Paper #43.

7   Newsham GR & Birt B. 2010. Demand-responsive lighting: a field study. Leukos. 6(3) pg 203–225.

8   Eces. 2011 Commercial office plug load assessment. California Energy Commission PIER Program.

9   Williams A, et al. 2012. Lighting Controls in Commercial Buildings. Leukos. 8(3) pg 161–180.

10  Galasiu AD, et al. 2007. Energy saving lighting control systems for open-plan offices: A field study. Leukos. 4(1) pg 7–29.

11  Lutron study based on reduction in heating (base 60°F) and cooling (base 55°F) degree days with a 2°F thermostat setback and 60% space un-occupancy. EnergyPlus modeling simulations were conducted and predicted similar savings.

For a list of all Vive wireless solutions product model numbers and pricing see **lutron.com/Vive**

**Questions?**
call us 24*7
1.844.588.7661

**⚘LUTRON**®