

# INSTALLED DAYLIGHT SENSORS GUIDE



## SPOTLIGHT

## ARCHITECTURAL SENSORS



Practical sensor options.

In-product installed.

Closed or open loop options.

ASHRAE compliant.

Significant energy savings.

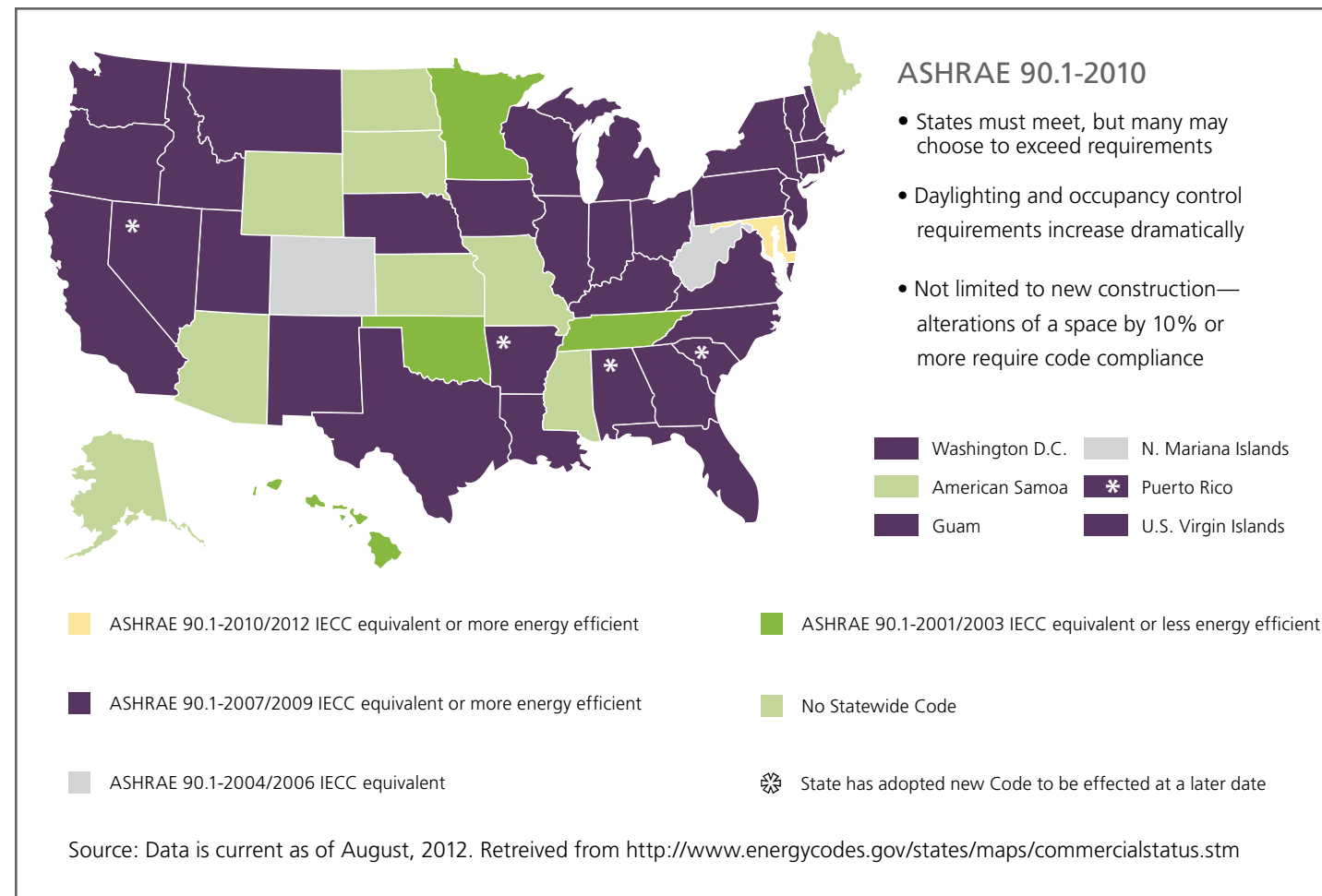
**GOOD NEWS** Daylight Harvesting is easily adapted to existing architecture and need not require an expensive overhaul. Most buildings already include windows where natural light is present during normal business hours. Simply install new lighting with sensors pre-placed within the luminaires and start taking advantage of nature's lighting bounty today.

**CODE COMPLIANCE**

Does your state require Daylight Harvesting today? Will it tomorrow? States will be required to update their energy codes to meet or exceed the ASHRAE 90.1-2010 by October 2013<sup>1</sup>. ASHRAE 90.1 requires control when daylight from toplighting (skylights) or sidelighting (windows) is present. This new standard applies to daylight areas exceeding 900ft<sup>2</sup> for toplighting areas or 250ft<sup>2</sup> for sidelighting areas. Control must be multi-level with continuous dimming or at least two output levels from 0–35% and 50–75%.

In addition, ASHRAE 90.1-2010 lowers the allowable power density for commercial, educational, and institutional spaces, meaning that the type of lighting installed must be energy efficient and inherently sustainable. Alera Lighting products fit this requirement with typical efficiencies above 90%.

Alera meets the continuous dimming requirements with both the Philips and Lutron installed sensor solution options.



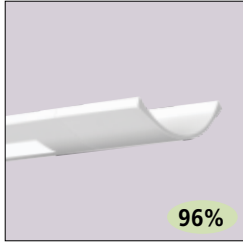
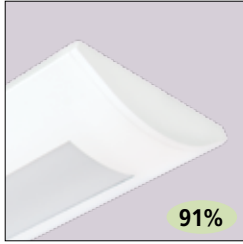
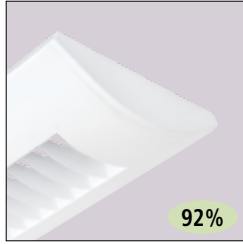
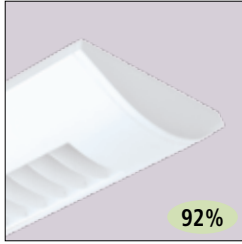
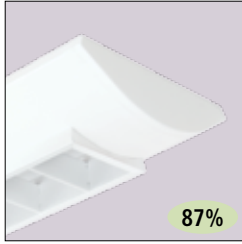
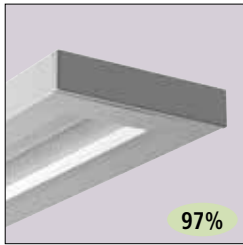
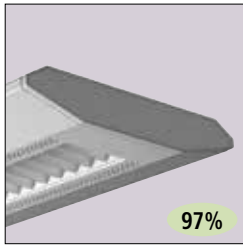
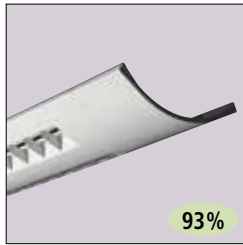
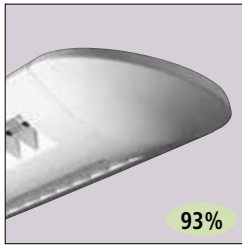
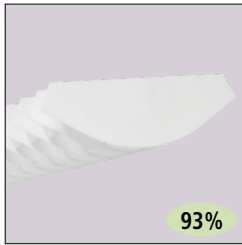
**5 STEPS TO DAYLIGHTING SUCCESS**

**ARCHITECTURAL SENSORS FROM ALERA LIGHTING**  
IN-PRODUCT INSTALLED DAYLIGHT SENSORS

It makes sense to use Alera's Practical Sensor options to simplify installation, add value to the project, and improve sustainable design for commercial indoor lighting projects.

**STEP 1** SELECT YOUR PRODUCT AVAILABLE WITH ARCHITECTURAL SENSORS

Fixture Efficiency

 <b>96%</b>	 <b>91%</b>	 <b>92%</b>	 <b>92%</b>	 <b>87%</b>
<b>Curv, Curv Plus Liso</b> Indirect 95-100% Up, 0-5% Down 4', 8', 12' 1-3 Lamp Cross Sections	<b>Curv Radial Lens</b> Direct/Indirect 70% Up, 30% Down 4', 8' 1-3 Lamp Cross Sections	<b>Curv Radial Baffle</b> Direct/Indirect 65% Up, 35% Down 4', 8' 1-3 Lamp Cross Sections	<b>Curv Radial Perf Baffle</b> Direct/Indirect 65% Up, 35% Down 4', 8' 1-3 Lamp Cross Sections	<b>Curv Louvered</b> Direct/Indirect 65% Up, 35% Down 4', 8' 1-3 Lamp Cross Sections
 <b>97%</b>	 <b>97%</b>	 <b>93%</b>	 <b>93%</b>	 <b>93%</b>
<b>Plank Plus Liso</b> Direct/Indirect 75% Up, 20% Down 4', 8', 12' 1-3 Lamp Cross Sections	<b>Nevis Plus Liso</b> Direct/Indirect 75% Up, 20% Down 4', 8', 12' 1-3 Lamp Cross Sections	<b>Curvista Solid</b> Direct/Indirect 70% Up, 30% Down 4', 8' 2-4 Lamp Cross Sections	<b>Curvista Perf</b> Direct/Indirect 70% Up, 30% Down 4', 8' 2-4 Lamp Cross Sections	<b>Paleta</b> Direct/Indirect 70% Up, 30% Down 4', 8' 2-4 Lamp Cross Sections

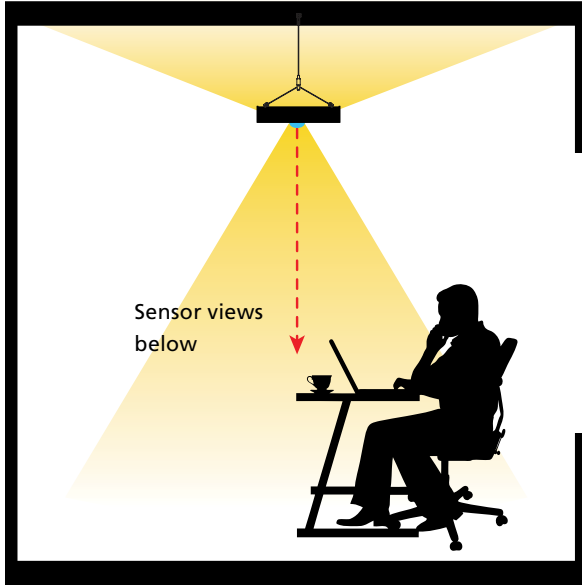
<sup>1</sup> Federal Register Volume 75, No. 202, Page 65904. October 19, 2011

# 5 STEPS TO DAYLIGHTING SUCCESS

## STEP 2 SELECT YOUR INSTALLED SENSOR

### CLOSED LOOP

**PHILIPS LUXSENSE (-DSPL)**  
Sensor signal affected by light sources controlled



### SYSTEM TYPE

#### STAND-ALONE SYSTEM

Delivered pre-commissioned. Commissioning adjustment, if desired, via manual twist sensor ring. Does not require additional components to operate and commission; preset for 45fc out of the box.

#### COMPATIBLE BALLASTS

EDMK7—Mark 7 0-10V Dimming

### ADVANTAGES

- Small, unobtrusive daylight sensor does not impact luminaire aesthetic
- Closed loop daylight harvesting method
  - Looks down at a cone of light below the product to measure electrical input needed
  - Does not require a direct view of window to operate
  - Stand-alone system does not require additional components to operate correctly
- Daylight Sensor and Mark 7 0-10V dimming ballast arrive pre-installed in Alera Lighting product

### APPEARANCE



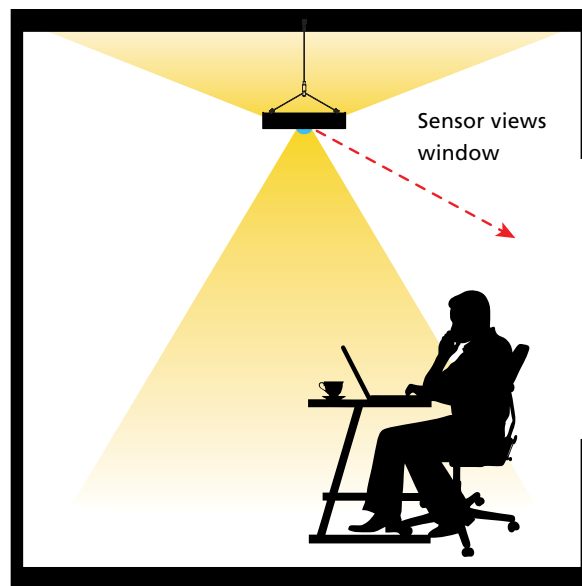
SHOWN WITH CURV RADIAL BAFFLE SOLID



PHILIPS LUXSENSE

### OPEN LOOP

**LUTRON ECOSYSTEM (-DSL)**  
Sensor signal not affected by light sources controlled



### SYSTEM TYPE

#### INTEGRATED SYSTEM

Sensor and dimming ballasts are factory installed as components of a larger Lutron EcoSystem® controls plan. Requires additional vendor supplied components to operate and commission.

#### COMPATIBLE BALLASTS

EDLUTES—Lutron EcoSystem (EC5 Series)

### ADVANTAGES

- Modestly sized sensor with white finish
- Open loop daylight harvesting method
  - Aims directly at window for a true daylight reading
  - Requires a direct view of the window to operate
  - Part of a Lutron EcoSystem installation which integrates seamlessly into Lutron's proprietary larger system
- Daylight Sensor and Lutron EcoSystem® digital dimming ballast arrive pre-installed in Alera Lighting product

### APPEARANCE



SHOWN WITH CURV RADIAL BAFFLE SOLID



LUTRON ECOSYSTEM

# 5 STEPS TO DAYLIGHTING SUCCESS

## STEP 3 PLACE ORDER

Example shown below is Curv Radial Baffle product.

For additional product availability, see back cover or contact Alera Lighting for additional details.

MODEL	FINISH	ADJUSTABLE CABLE LENGTH	WARRANTY	OPTIONS
CRV8 - Curv Radial Baffle	White	48" - 96"	12 Year	DSPL, DSL, DSPL+DSL
CRV12 - Curv Radial Baffle	White	48" - 96"	12 Year	DSPL, DSL, DSPL+DSL
CRV18 - Curv Radial Baffle	White	48" - 96"	12 Year	DSPL, DSL, DSPL+DSL

**BALLAST**

**EDUMK7** Universal Voltage Electronic Dimming Advance Mark 7 (0-10V)<sup>3,4</sup>

**EDULUTES** Universal Voltage Electronic Dimming Lutron EcoSystem (EC5 Series)<sup>4,7</sup>

**OPTIONS**

**DSPL** Philips LuxSense Daylight Sensor<sup>3,4</sup>

**DSL** Lutron Daylight Sensor (Must Specify Lutron Dimming Ballast)<sup>4,7</sup>

<sup>3</sup> Philips Mark 7 required with DSPL Option. Contact factory for other compatible Philips ballasts.

<sup>4</sup> Not available with all configurations; some limitations apply. Contact factory for details.

<sup>7</sup> Lutron EcoSystem series ballast required for DSL option. Contact factory for other compatible Lutron ballasts.

## STEP 5 EASY INSTALL

Sensors arrive pre-installed

### DSPL OPTION PHILIPS LUXSENSE

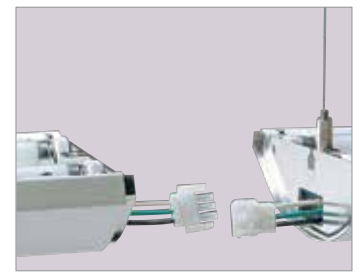
System is pre-commissioned by Philips and assumes 45fc out-of-the-box. For on-site adjustments, if desired, simply twist sensor to set at new level. For details, see page 9 of this brochure.

### DSL OPTION LUTRON ECOSYSTEM® SENSOR

Product becomes an element of the EcoSystem family and the installed sensor is commissioned using Lutron's proprietary interfaces. Ballast and sensor are pre-installed by Alera to facilitate on-site simplicity of sensor installation and connection to ballast(s). For details, see pages 6 and 7 of this brochure.

### QUICK-CONNECT IN-ROW CONTROL AND FIXTURE WIRING

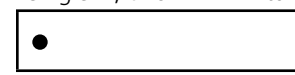
Short rows typically require a single feed where control wiring is carried through the luminaire via quick-connect wiring to dramatically reduce complexity and on-site wiring errors. Power feed wires are also handled via the installer-friendly Quick-Connect method.



## STEP 4 DESIGN ROOM

Examples below show installed sensor locations. Products will be wired to your specifications.

Single 4', 8' or 12' \* Fixture with Sensor.



Row of two or more 4', 8' or 12' \* Fixtures with Sensors where Sensor is placed at row end.



Row of two or more 4', 8' or 12' \* Fixtures with Sensors where Sensor is placed within row.



\*Available lengths vary by product family.

SHOWN WITH PLANK

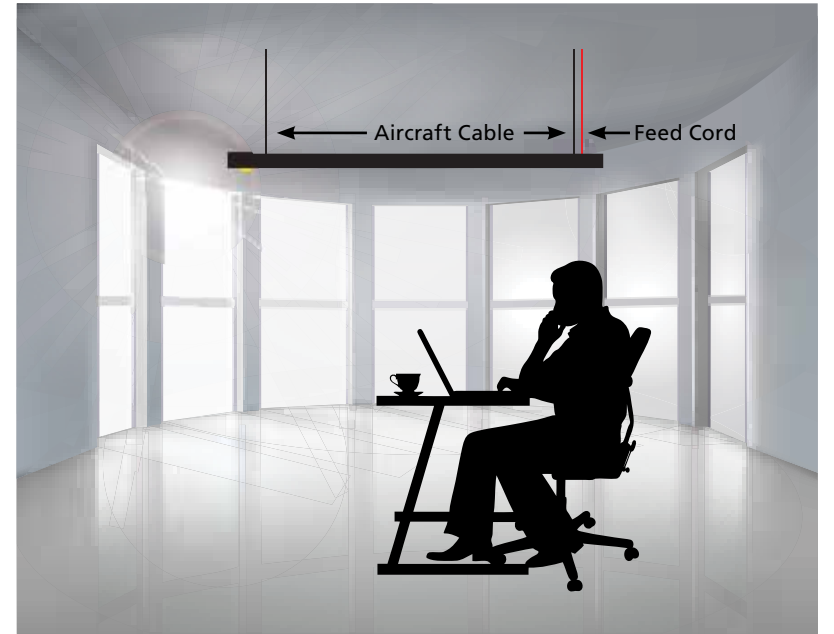


### EXAMPLE OF A PRIVATE OFFICE WITH SUSPENDED LUMINAIRE WITH SENSOR

Suspended Alera Lighting Luminaire  
12-18" Suspension

8' Mounting Height from Floor to Sensor

2.5' from Floor to Desktop



## WHY INSTALL A DAYLIGHT SENSOR?

### ENERGY REDUCTION

Incorporating Daylight Harvesting can save significant energy in both private offices and large, open areas where natural sunlight is present during operating hours. Energy savings from facility operations go directly to operating profit, making this an attractive element of any energy reduction strategy.



### SUSTAINABLE BEST PRACTICE

A true win-win solution. Many leading organizations place importance on sustainable best practices that can be easily demonstrated to customers, employees, and shareholders. Daylight harvesting is a simple way to implement best practice lighting that can be used to enhance company image while saving incremental energy for a true win-win solution.



## TECHNICAL DATA

### INSTALLED SENSOR OPTION

#### DSPL—DAYLIGHT SENSOR, PHILIPS LUXSENSE

Requires Mark 7 Dimming Ballast, 0-10v • Up to 32% Potential Energy Savings



Shown installed in Curv Radial Lens at left.

For specific in-product placement in other Alera Lighting products, see individual product specification and/or technical data sheets. For special placement requests, contact Alera Lighting.



CLOSED LOOP OPERATION

### SENSOR MANUFACTURER DATA

#### LuxSense Commissioning

- Measure the light level under each LuxSense sensor with no or negligible daylight contribution
  - Light meter required
- If needed, turn the sensor until the required light level is reached (with no or negligible daylight contribution)
- Duplicate this in other rooms when similar daylight and reflectance conditions exist
- Note that Philips LuxSense is not designed for maintaining a constant light level
- **Warning:** The reduced light level should be no more than 30% lower than the average installed light level, without daylight contributions (example: 55fc installed, adjustment down to 39fc is possible)

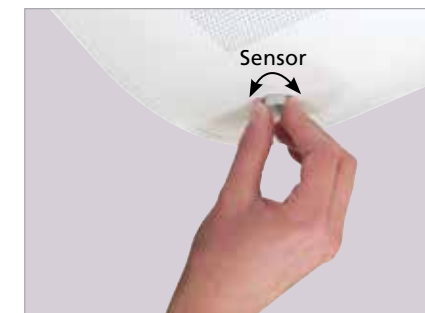
#### Optical Characteristics

- It is assumed that the reflection in a room is such that a light level of 45fc on a table (2.6' high) will result in 2.3fc seen by the controller at 8' under a viewing angle of 45°; the opening angle can be adapted by the sensor ring control, realizing an adjustment factor between 1/3 and 3.

#### Controls Characteristics

- LuxSense compensates approximately for 50% of the added light (simulated and measured with a fluorescent light source). See graph at left below. In case of a natural light source, the compensation is higher than 50%.

To adjust light level setting, twist sensor as indicated by arrow and seen below.



## TECHNICAL DATA

### INSTALLED SENSOR OPTION

#### DSL—LUTRON ECOSYSTEM® SENSOR

Requires Integration into Larger Lutron EcoSystem® Package

Requires Lutron EcoSystem® EC5 Series Digital Ballasts

40%-70% Potential Energy Savings when Installed as Part of a Complete EcoSystem® Installation



Shown installed in Curv Radial Lens at left.

For specific in-product placement in other Alera Lighting products, see individual product specification and/or technical data sheets. For special placement requests, contact Alera Lighting.



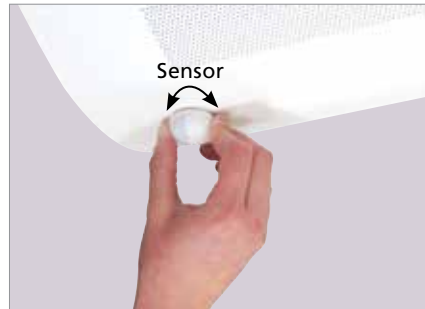
OPEN LOOP OPERATION

### SENSOR MANUFACTURER DATA

#### Lutron Commissioning

The installed Lutron sensor integrates into the larger EcoSystem® application via proprietary Lutron components.

For commissioning details, please contact Lutron, or if applicable, your Alera Lighting representative.



#### Optical Characteristics

Directional light sensing requires lens be aimed at window(s). (see adjacent page)

#### Controls Characteristics

- Sensor is equipped with IR receiver
- EcoSystem® Programmer can be used to commission
  - See Lutron.com for additional data

#### Alera Lighting Note

To adjust sensor direction, twist sensor as indicated by arrow seen at left.

#### Lutron Additional Componentry

Please note that the Lutron system can include wall switches and occupancy sensors which may need to be wired into the EcoSystem® ballast. While these additional ancillary components are not available installed on the fixture itself, the in-fixture wiring requirements can typically be accommodated.

Alera Lighting will, therefore, ask for project details to determine if additional wiring is required within the Alera product.

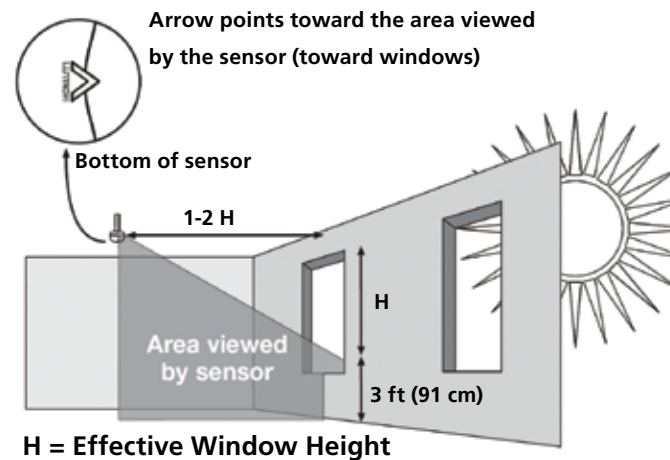
### SENSOR MANUFACTURER DATA CONTINUED

#### Determining the Daylight Sensor Mounting Location

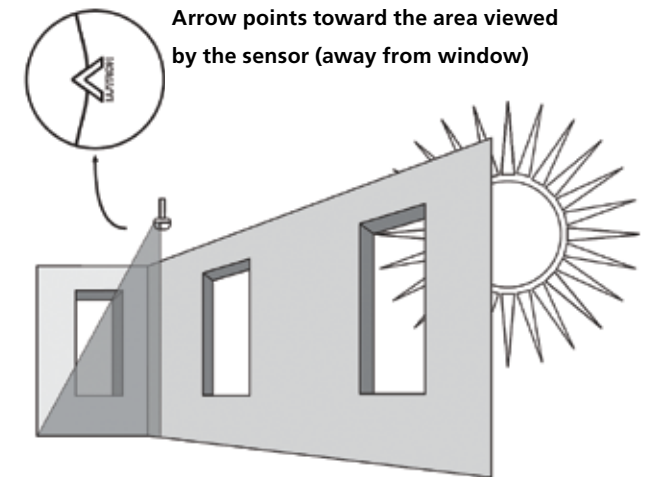
Determine the proper location of the Daylight Sensor using the adjacent diagrams.

- The arrow on the daylight sensor points toward the area viewed by the sensor.
- Place the daylight sensor so its viewing area is centered on the nearest window at a distance from the window of between one to two times the effective window height, H.
- The effective window height, H, starts at the window sill or 3 feet (91 cm) up from the floor, whichever is higher, and ends at the top of the window.
- Ensure that the view of the daylight sensor is not obstructed.
- Do not position the daylight sensor in the well of a skylight or above indirect lighting fixtures.
- For narrow areas where the daylight sensor cannot be placed 1-2 H from windows, place sensor near window facing into the space.

#### TYPICAL INSTALLATION



#### NARROW AREA INSTALLATION

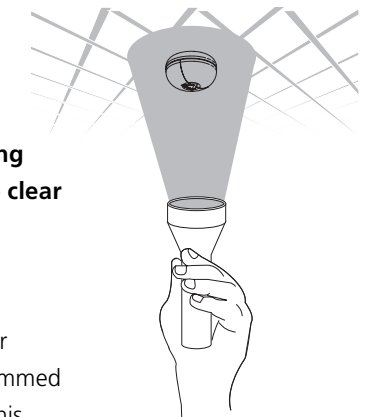


#### Testing the Daylight Sensor

- Ensure power to the lighting circuit in ON.
- Ensure the lighting control system is commissioned properly.

**WARNING: Electrical shock hazard. Can cause serious injury or death. The lighting circuit should be energized only when all wiring is complete and all persons are clear of fixtures/devices. Turn power ON only after checking that it is safe to do so.**

- Shine a flashlight directly onto the daylight sensor.
- Keep the light ON for at least 30-40 seconds. This should cause the lights connected or programmed to the sensor to dim. If the lights do not dim, they may already be at a dimmed level due to daylight. If so, you may test the sensor by covering it for 30-40 seconds. This should cause the lights to get brighter.





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ARCHITECTURAL AREA LIGHTING  
BEACON PRODUCTS  
COLUMBIA LIGHTING  
COMPASS  
DEVINE LIGHTING  
DUAL-LITE  
HUBBELL BUILDING AUTOMATION  
HUBBELL INDUSTRIAL LIGHTING  
HUBBELL OUTDOOR LIGHTING  
KIM LIGHTING  
KURT VERSEN  
PRESCOLITE  
PROGRESS LIGHTING  
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