

LIGHTING LAYOUT GUIDE SERIES

WAREHOUSE GUIDE 6

PRODUCT SPECIFICATIONS



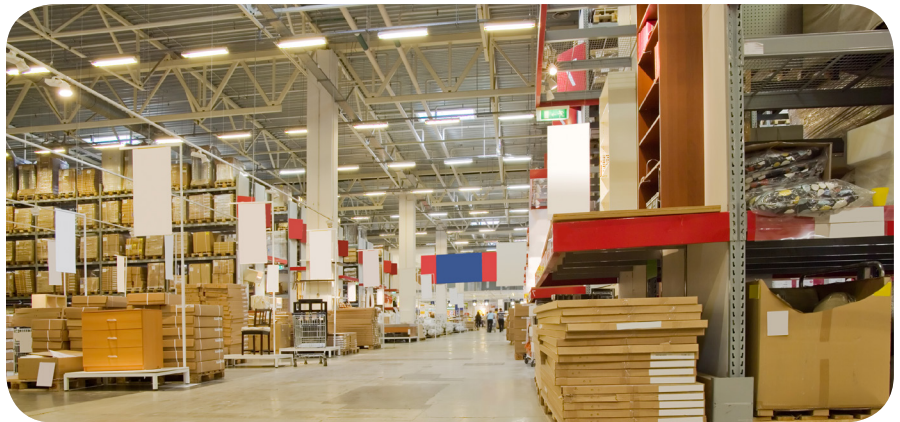
Sensor Type: ON/OFF & automatic dimming photocell
Mounting: Surface
Configuration: Open Loop

For additional information about lighting layout options in warehouse applications, refer to the Open Warehouse Guides, Series 1 through 5.

Tip
In skylights, mount sensors against the southernmost side to avoid direct sunlight, allowing for more consistent operation.

OPEN WAREHOUSE

DAYLIGHT CONTROLS – OPEN LOOP



THE OPPORTUNITY

In a typical high, open ceiling warehouse with fluorescent high bay or LED luminaires and skylights, it is possible to provide high quality lighting that illuminates the warehouse floor and task areas to recognized standards, meets or beats energy codes (typically 0.50 watts/sq.ft. for warehouses) and is within the IES recommended footcandle (fc) levels for warehouse spaces 10-30 fc.

THE SOLUTION

Install photo-sensing lighting control devices in an Open Loop configuration. Open Loop systems measure only incoming daylight, not the contribution from the electric lighting. The photosensors are therefore typically mounted either outside the building or inside near the daylight aperture, in this case, the skylights. Open Loop systems tend to be easier to set up, requiring a light level reading only during the daytime.

DESIGN CONSIDERATIONS

Most energy codes now require controlling luminaires within the Daylight Zones separate from those outside the zones. Luminaires within this Zone must be controlled by automatic daylight sensing devices capable of either continuous dimming to at least 20% of light output, step switching individual luminaires, or step dimming of all lamps to 50% of light output.

NOTE: Check local/state energy codes for current requirements.



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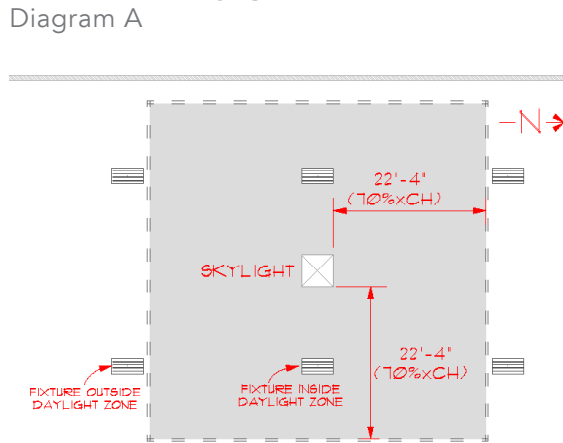
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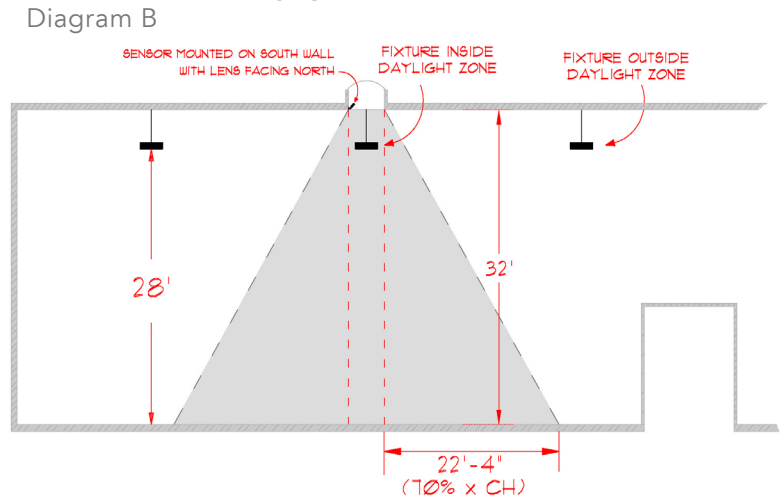
LAYOUT OPTIONS

Open Warehouse | Daylight Controls Open Loop

Plan View of Daylight Zone
Diagram A



Section View of Daylight Zone
Diagram B



CONTROLS STRATEGY

The Daylight Zone under a skylight is defined by most jurisdictions to be the area under a skylight whose horizontal dimension, in each direction, is equal to the skylight's dimension in that direction plus 70% of the floor to ceiling height (with notations for partitions and other skylights nearby). Any luminaire within the Daylight Zone must be controlled separately from those outside the Daylight Zone.

Open Loop photocells are used to measure only incoming daylight, not the contribution from the electric lighting. The photosensor should not see any electric light, therefore it must be mounted near the skylight pointed toward the sky (see Diagram B). It is called an Open Loop because there is no feedback to the sensor. A primary advantage of Open Loop systems is that only one sensor is needed to control large lighting zones.

Another cost-effective option is specifying luminaires with integral photocells, which minimizes wiring labor costs. However, they tend to be closed loop systems.

ENERGY SAVING STRATEGIES

STRATEGY	BENEFIT	TECH NOTES
Daylight dimming sensor in skylights	Can balance light levels within the space, while using only enough wattage to maintain target light levels	Light levels maintained from daylight
Integrated occupancy sensor	Simple to commission and minimizes installation costs	Be sure target light levels are not compromised