



# Fact Sheet

## Title 24, Part 6 Nonresidential Daylighting and Controls

### Summary

The 2013 Title 24 Standards have introduced new daylighting control requirements that apply to many spaces. Mandatory daylighting controls are required for lighting that is in a daylit zone where the installed general lighting is 120 Watts or greater and fenestration area is 24 square feet or greater. When using a prescriptive compliance method, luminaires in the secondary sidelit zone must also have daylighting controls.

Parking garages that have a combined glazing or opening area of 36 square feet or greater must also comply with the daylighting control requirements of the Standards, except when the combined general lighting power in the daylit zones is less than 60 Watts. Daylighting controls are not required in parking garage daylight transition zones, which is a vehicular path intended to provide a transition between exterior and interior illumination levels and does not include parking areas.

For lighting that requires daylighting controls, mandatory dimming controls that meet the specifications of Table 130.1-A are required. For example, linear fluorescent lamps greater than 13 Watts require either continuous dimming, stepped dimming down to a maximum of 40% on the lowest step, or switching lamps with a minimum of four lamps per luminaire.

### Dimming Performance

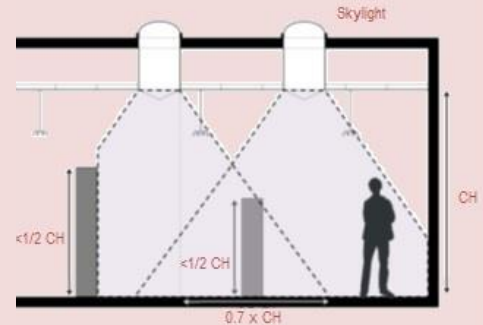
Installed daylighting controls must meet the following mandatory performance characteristics:

The daylighting controls must operate so that when the daylight received from the illuminance source (window or skylight) exceeds 150 percent of the design illuminance setpoint for electric lighting, the general lighting power must be reduced by a minimum of 65 percent. For example, if the illuminance setpoint in the space is 40 footcandles (fc), when the illuminance level from daylighting reaches 60 fc, the controls must dim the lights by at least 65%. When possible, controls that can automatically maintain

### What is a daylit zone?

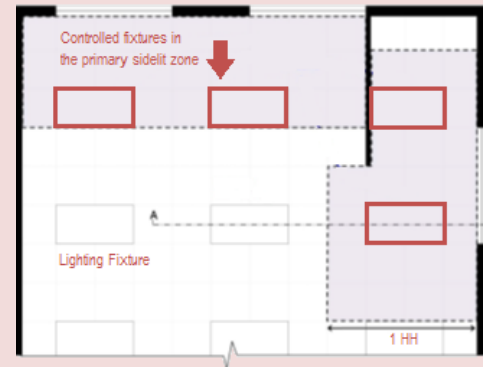
#### The **skylit daylit zone**

is an area of the space equal to the area of the skylight plus a distance 0.7 times the average height of the skylight above the floor, extending out from the edges of the skylight.



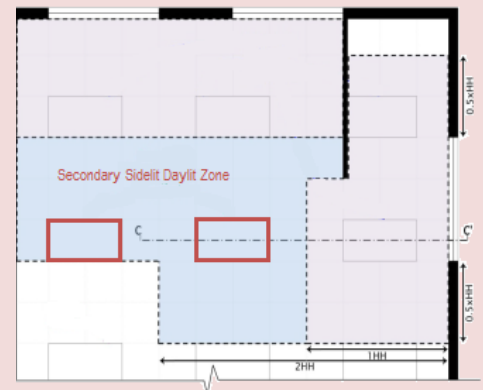
#### The **primary sidelit daylit zone**

is the area on a plan directly adjacent to each vertical glazing, one window head height deep into the area, and window width plus 0.5 times window head height wide on each side of the rough opening of the window.



#### The **secondary sidelit daylit zone**

is the area on a plan directly adjacent to each vertical glazing, two window head heights deep into the area, and window width plus 0.5 times window head height wide on each side of the rough opening of the window.



illuminance levels at the set point at all times of the day are an even better solution.

Mandatory daylighting control requirements for parking garages are different than for other spaces:

Primary and secondary daylit zones can be controlled together. Daylighting controls for parking garages can be on/off, where other spaces require continuous or stepped dimming controls. Lighting in the primary and secondary daylit zones of parking garages must be completely turned off, when the space is fully daylit. For other space types multilevel dimming can be used with the dimmed lights consuming up to 35% of full power.

## Skylit Daylit Area Requirements in High Ceiling Spaces

Large enclosed spaces with high ceilings must have a minimum amount of daylight available when using the prescriptive compliance method. The requirements apply for buildings in climate zones 2 through 15 with a space that has:

1. Floor area greater than 5,000 ft<sup>2</sup> directly under a roof and
2. Ceiling height greater than 15 ft and
3. Have a general lighting system with a lighting power density equal to or greater than 0.5 W/ft<sup>2</sup>

Buildings that meet all of the above criteria must have at least 75% of the floor area within skylit or primary sidelit daylit zones, and the skylight area cannot comprise more than 5% of the gross roof area.

Sizing, selection and placement of the skylights is necessary, to avoid overlapping daylit zones from adjacent skylights. For most spaces, a skylight area that is 3% to 4% of the gross roof area can provide necessary daylit area coverage, while limiting solar heat gain.

## For More Information

For more information, consult the following sources:

- Fact Sheet for Non-Res Lighting Mandatory Controls.

- Title 24 Nonresidential Compliance Manual

## Compliance Documentation

To show compliance with daylighting control requirements, the following forms are required:

1. NRCC-ENV-04-E Daylit Zone Worksheet
2. NRCC-LTI-02-E: Indoor Lighting Controls - Compliance Certificate
3. NRCA-LTI-03-A: Automatic daylighting Lighting Controls - Acceptance Test
4. NRCI-LTI-02-E: EMCS or Lighting Control System - Installation Certificate

