LEED BD+C: Healthcare | v4

Daylight

Possible 2 points

Glossary

Intent

To connect building occupants with the outdoors, reinforce circadian rhythms, and reduce the use of electrical lighting by introducing daylight into the space.

Requirements

Provide manual or automatic (with manual override) glare-control devices for all regularly occupied spaces.

Select one of the following three options.

Option 1. Simulation: Spatial Daylight Autonomy (2–3 points, 1-2 points Healthcare)

Demonstrate through annual computer simulations that spatial daylight autonomy$_{300/50\%}$ (sDA$_{300/50\%}$) of at least 55%, 75%, or 90% is achieved. Use regularly occupied floor area. Healthcare projects should use the perimeter area determined under EQ Credit Quality Views. Points are awarded according to Table 1.

Table 1. Points for daylit floor area: Spatial daylight autonomy

New Construction, Core and Shell, Schools, Retail, Data Centers, Warehouses & Distribution Centers, CI, Hospitality		Healthcare	
sDA (for regularly occupied floor area)	Points	sDA (for perimeter floor area)	Points
55%	2	75%	1
75%	3	90%	2

AND

Demonstrate through annual computer simulations that annual sunlight exposure$_{1000,250}$ (ASE$_{1000,250}$) of no more than 10% is achieved. Use the regularly occupied floor area that is daylit per the sDA$_{300/50\%}$ simulations.

The sDA and ASE calculation grids should be no more than 2 feet (600 millimeters) square and laid out across the regularly occupied area at a work plane height of 30 inches (76 millimeters) above finished floor (unless otherwise defined). Use an hourly time-step analysis based on typical meteorological year data, or an equivalent, for the nearest available weather station. Include any permanent interior obstructions. Movable furniture and partitions may be excluded.

Option 2. Simulation: Illuminance Calculations (1–2 points)

Demonstrate through computer modeling that illuminance levels will be between 300 lux and 3,000 lux for 9 a.m. and 3 p.m., both on a clear-sky day at the equinox, for the floor area indicated in Table 2. Use regularly occupied floor area. Healthcare projects should use the perimeter area determined under EQ Credit Quality Views.

Table 2. Points for daylit floor area: Illuminance calculation

New Construction, Core and Shell, Schools, Retail, Data Centers, Warehouses & Distribution Centers, Hospitality, CI		Healthcare	
Percentage of regularly occupied floor area	Points	Percentage of perimeter floor area	Points
75%	1	75%	1
90%	2	90%	2

Calculate illuminance intensity for sun (direct component) and sky (diffuse component) for clear-sky conditions as follows:

- Use typical meteorological year data, or an equivalent, for the nearest available weather station.
- Select one day within 15 days of September 21 and one day within 15 days of March 21 that represent the clearest sky condition.
- Use the average of the hourly value for the two selected days.

Exclude blinds or shades from the model. Include any permanent interior obstructions. Movable furniture and partitions may be excluded.

Option 3. Measurement (2-3 points, 1-2 points Healthcare)

Achieve illuminance levels between 300 lux and 3,000 lux for the floor area indicated in Table 3.

Table 3. Points for daylit floor area: Measurement

NC, CS, Schools, Retail, Data Centers, Warehouses & Distribution Centers, Hospitality, CI		Healthcare	
Percentage of regularly occupied floor area	Points	Percentage of perimeter floor area	Points
75	2	75	1
90	3	90	2

With furniture, fixtures, and equipment in place, measure illuminance levels as follows:

- Measure at appropriate work plane height during any hour between 9 a.m. and 3 p.m.
- Take one measurement in any regularly occupied month, and take a second as indicated in Table 4.
- For spaces larger than 150 square feet (14 square meters), take measurements on a maximum 10 foot (3 meter) square grid.
- For spaces 150 square feet (14 square meters) or smaller, take measurements on a maximum 3 foot (900 millimeters) square grid.

Table 4. Timing of measurements for illuminance

If first measurement is taken in ...	take second measurement in ...
January	May-September
February	June-October
March	June-July, November-December
April	August-December
May	September-January
June	October-February
July	November-March
August	December-April
September	December-January, May-June
October	February-June
November	March-July
December	April-August