

Daylight and Views

FROM LEED

LEED IEQ Credit 8.2 (for both ID&C and BD&C)

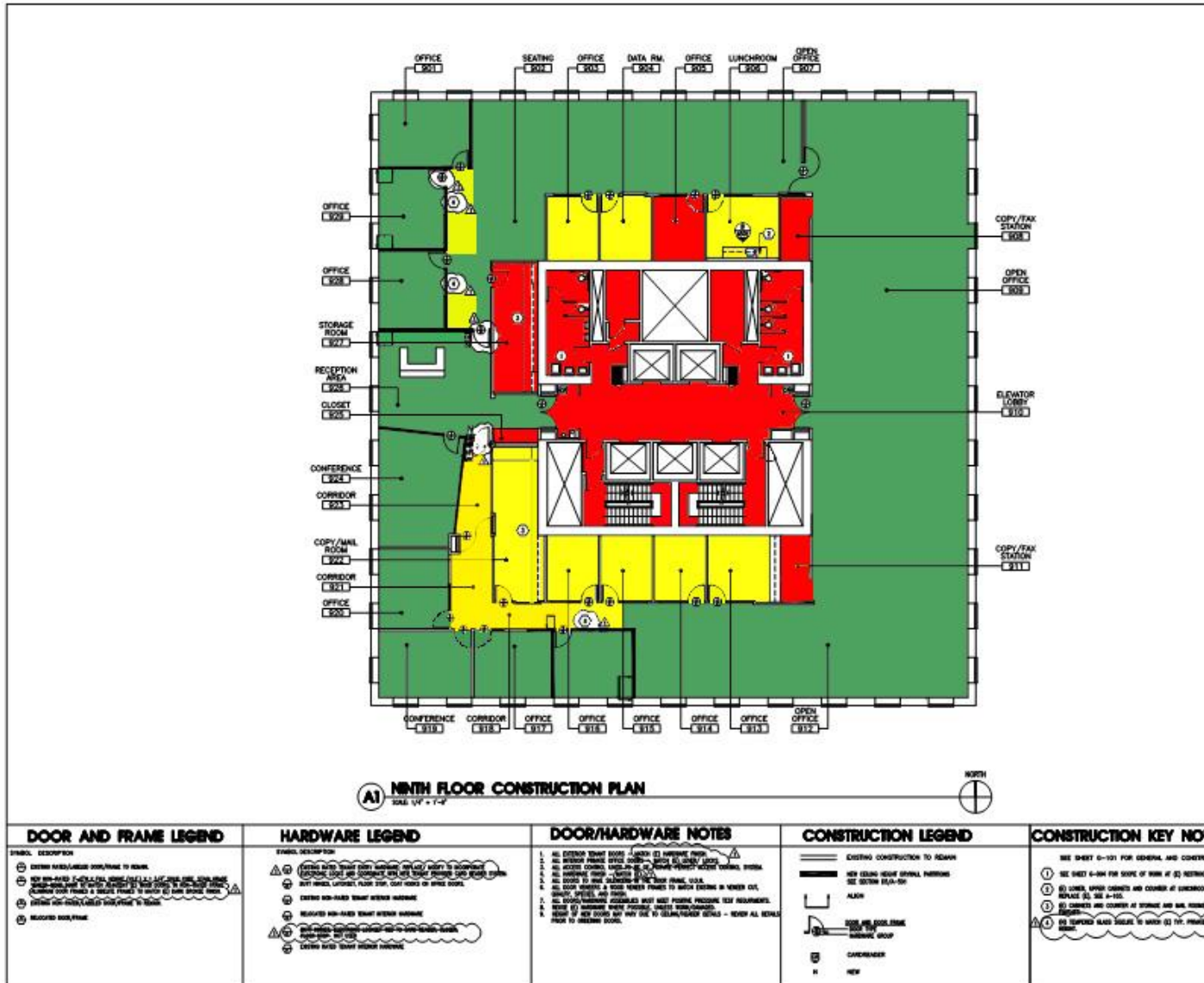
Requirements:

Achieve a direct line of sight to the outdoor environment via vision glazing between 30 inches and 90 inches above the finish floor for building occupants in 90% of all regularly occupied areas. Determine the area with a direct line of sight by totaling the regularly occupied square footage that meets the following criteria:

- In plan view, the area is within sight lines drawn from perimeter vision glazing.
- In section view, a direct sight line can be drawn from a point 42 inches above the floor (typical seated eye height) to perimeter vision glazing.

The line of sight may be drawn through interior glazing. For private offices, the entire square footage of the office may be counted if 75% or more of the area has a direct line of sight to perimeter vision glazing. If less than 75% of the area has a direct line of sight, only the area with the direct line of sight count toward meeting the credit requirement. For multi-occupant spaces, the actual square footage with a direct line of sight to perimeter vision glazing is counted.

Avanti Products' Contribution:



Above is a set of sample plans that demonstrate the increase in direct line of sight to outdoor glazing that results from the use of Avanti transparent partitions, walls and doors. The green shaded region represents the direct of line sight area of regularly occupied spaces that is standard based on the design and layout of the floor. The red region represents spaces that are

not regularly occupied (i.e. closets, storage rooms, elevator bank). The yellow shaded region is the spaces that have direct line of sight to outdoor glazing because of the use of Avanti products. As you can see there is a significant increase in the area that has direct sight lines to the outdoors. For LEED, IEQ Credit 8.2 (see above) states that to receive a point 90% of all regularly occupied spaces must have a direct line to the outdoor environment. In the scenario represented by the sample plans, before the implementation of Avanti products an estimated 81% of spaces would have access to exterior glazing, not qualifying the space for a point under LEED IEQ 8.2. After the Avanti products are put in place the area with direct line of sight to the outdoor environment increases to 99%, qualifying the space for a point. See below for the calculations.

Direct View Calculation	
Total Square Footage	24400
Not regularly Occupied Spaces (Red)	-5625
Total Occupied Space	18775
Occupied with Access to Views without Avanti Partitions and walls (Green)	15175
Percent Access with Views	81%
Occupied with Access to Views with Avanti Partitions and walls (Yellow)	3350
Percent Access with Views	18%

Figure 2: Calculation for IEQ 8.2

LEED IEQ Credit 8.1 (for both ID&C and BD&C)

Requirements

The percentage of daylighting to be achieved for each point threshold is as follows:

Classroom Spaces	Points
75%	1
90%	2

Option 1. Simulation

Demonstrate through computer simulations that 75% (1 point) or 90% (2 points) or more of all regularly occupied spaces areas achieve daylight illuminance levels of a minimum of 25 footcandles (fc) and a maximum of 500 fc in a clear sky condition on September 21 at 9 a.m. and 3 p.m. Areas with illuminance levels below or above the range do not comply. However,

designs that incorporate view-preserving automated shades for glare control may demonstrate compliance for only the minimum 25 fc illuminance level.

OR

Option 2. Prescriptive

Use a combination of side-lighting and/or top-lighting to achieve a total daylighting zone that is at least 75% (1 point) or 90% (2 points) of all the regularly occupied spaces.

- Achieve a value, calculated as the product of the visible light transmittance (VLT) and window-to-floor area ratio (WFR) of the daylight zone, between 0.150 and 0.180. The window area included in the calculation must be at least 30 inches above the floor.

$$0.150 < \text{VLT} \times \text{WFR} < 0.180$$

- The ceiling must not obstruct a line in section that:
 - Joins the window-head to a line on the floor that is parallel to the plane of the window;
 - Is twice the height of the window-head above the floor in distance from the plane of the glass as measured perpendicular to the plane of the glass,
- Provide sunlight redirection and/or glare control devices to ensure daylight effectiveness.

OR

Option 3. Measurement

Demonstrate, through records of indoor light measurements that a minimum daylight illumination level of 25 fc has been achieved in at least 75% (1 point) or 90% (2 points) of all regularly occupied areas. Measurements must be taken on a 10-foot grid for all occupied spaces and recorded on building floor plans.

Only the square footage associated with the portions of rooms or spaces meeting the minimum illumination requirements may be counted in the calculations. For all projects pursuing this option, provide daylight redirection and/or glare control devices to avoid high contrast situations that could impede visual tasks. Exceptions for areas where tasks would be hindered by daylight will be considered on their merits.

OR

Option 4. Combination

Any of the above calculation methods may be combined to document the minimum daylight illumination in at least 75% (1 point) or 90% (2 points) of all regularly occupied spaces. The different methods used in each space must be clearly recorded on all building plans.

In all cases, only the square footage associated with the portions of rooms or spaces meeting the requirements may be applied toward the 75% (1 point) or 90% (2 points) of total area calculation required to qualify for this credit.

In all cases, provide glare control devices to avoid high-contrast situations that could impede visual tasks. Exceptions for areas where tasks would be hindered by the use of daylight will be considered on their merits.

Definitions:

Visible light transmittance (VLT) is the percentage of visible light transparent or translucent openings transmit. Where building owners want plenty of natural light, they opt for high VLT values. Tinted glazings, which block glare by letting in less light, have low VLT ratings.

Avanti's Products Contribution:

For IEQ Credit 8.1 Avanti's transparent and translucent partitions, walls, and doors improve the daylighting of space. They increase the amount of space that has illuminance levels of 25 fc from natural light while also providing glare control adaptable to each case. The sample plans in Figure 1 provide a similar explanation to the exact contribution of Avanti's products as they did for IEQ 8.2. With the correct design of windows and office layout, implementing Avanti's products should increase the amount of space receiving 25 fc of natural daylight by 20% or more. In the sample plans scenario, Avanti's products will take the project from barely achieving one point to more than qualifying for two points.

Conclusion:

By employing any number of Avanti Systems' products, a project undergoing LEED certification under Interior Design and Construction or Building Design and Construction will achieve an additional two to three points under IEQ Credit 8.1 and 8.2. Avanti's transparent and translucent walls, partitions and doors not only improve the depth that natural daylight reaches into a space they also provide adaptable glare control for a multitude of situations.