

Daylighting for Stormville National Guard Facility

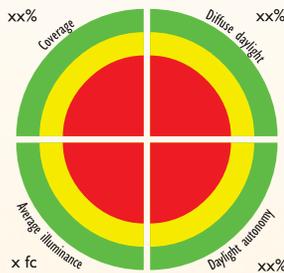
The LRC developed the Daylighting Dashboard to graphically communicate daylighting over a typical calendar year. Working with architects and engineers from BCK-IBI Group, the LRC used the Daylighting Dashboard to analyze the daylighting design options for a combined support and maintenance facility near Poughkeepsie, New York. BCK-IBI Group and their client, the New York State Office of General Services, were primarily concerned with achieving LEED certification for this building, but the Daylighting Dashboard provided supplemental information about lighting quality and potential energy savings throughout the year. Using the Daylighting Dashboard, the design team was able to easily see the effects of various glazing materials, skylight sizes and locations, and shading choices.



Lighting simulation using AGI32 illustrates that daylight penetration into workbay spaces is better controlled when interior baffles and light shelves are specified.

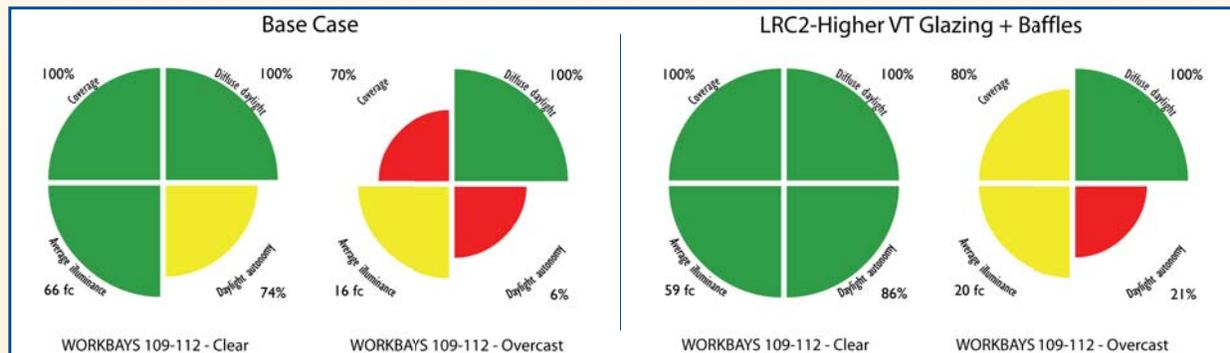
The template for the Daylight Dashboard uses color coding to indicate how well each daylight goal is met:

- green: goal is likely met with design strategy
- yellow: indicates caution, more modification may be necessary
- red: warning, goal is likely unmet with this strategy



Design Process

In the example below, the Daylight Dashboard communicates how well the high-ceiling maintenance areas were lighted. The design team was able to evaluate the effects of high visible-transmittance (VT) glazing, baffles and light shelves on multiple factors, such as diffuse daylight/glare, light levels, and daylight autonomy compared to the base case.



The illuminance levels used to determine the goals are based on the client's design levels. For both cases, 100% of the points meet the LEED 8.1 credit criterion (for both design times, 9 a.m. and 3 p.m.). However, LEED credit does not demonstrate the improvement in annual design performance that the Daylighting Dashboard shows.

Sponsors

BCK-IBI Group
New York State Office of General Services