



Neil Gordon: Daylighting: The good, the bad and the remedy

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Daylighting works through redirecting natural light to reduce artificial lighting. A common strategy for harvesting this daylight is to redirect the light into areas where illuminance levels are supported with artificial light. For example, a light shelf can be installed along the upper portion of the glazing to catch and bounce the incident sun rays and direct them farther into the space.

However, using the daylight to accomplish this requires dynamic control over the solar energy entering the building for two reasons, the total solar energy transmitted to a typical window can exceed 1,300 watts per square meter and direct unfiltered sunlight is too bright for typical office interiors. The illuminance or intensity of the incident light, is measured in lux. Illuminance levels required for office work lie between 250 and 1,000 lux, with 500 lux being the generally preferred amount. Direct sunlight can produce illuminance levels of over 100,000 lux, far exceeding a comfortable amount.

Glare control and heat reflectance are the most common failures in daylighting strategies. Daylighting can produce unwanted glare and put a strain on cooling systems. One way to successfully control glare and reduce the heat is through window coverings, in particular, solar shading systems.

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