

Daylighting – European Standard EN 17037

Introduction

Daylighting, a practice involving the access to and illumination of interior spaces by natural light, is an established component of good building design and has been linked to the improved health and performance of building occupants. Natural light and views are important design elements that are addressed in LEED and other building design assessment programs, and requirements continue to evolve to reflect their value. For insight into the potential future of daylighting requirements, it is valuable to understand the European Union standard for daylighting.

Due to factors such as population density, high energy cost, and environmental awareness, Europe has focused on healthy and sustainable building design, and therefore leads the world in many emerging building technologies, including green roofs, rain screen wall systems, and natural ventilation. Because of the industry's focus on healthy design, the practice of daylighting has become more mainstream, and EN 17037 was created to outline standardized daylighting requirements.

EN 17037 was published in 2018 and is the first European standard to provide requirements for daylight in buildings. It defines the quantity and quality of daylight building occupants should experience. This standard is applicable to all rooms occupied on a regular basis, except for rooms with functions that are incompatible with daylight. Its provisions have the potential to influence the depth of floorplates, the size, configuration, and orientation of windows, the use of skylights, the height of ceilings, and other key architectural elements.

Levels of Performance

EN 17037 sets standards for individual spaces within a building and recognizes that optimal daylighting varies by room type. Performance levels are established for each of four daylighting design criteria: daylighting, views, access, and glare. These criteria establish a minimum acceptable daylighting environment for building occupants and address health, comfort, and productivity.

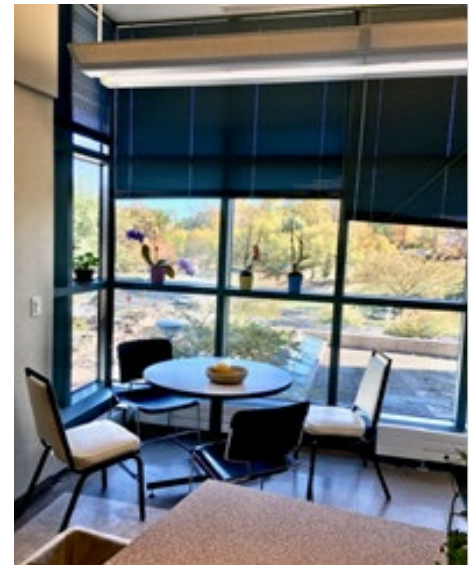
Daylighting: The daylighting provision require that adequate natural lighting, defined as 300 lux of natural light, should be present for building occupants to be able to perform regular tasks. A space is deemed compliant if it is calculated to achieve a minimum of 300 lux over 50% of the space for more than half the daylight hours in the year without artificial lighting.

Calculations can be validated by software or by specified procedures.

Views: The views provision requires that building occupants have exterior views which are clear, unobstructed, and naturally colored. Building users should have an acceptably large, clear view of the outside. Designers should consider factors such as width, distance, and features (sky, landscape, and ground).

Access: The access provision addresses exposure to direct sunlight, which is a comfort and health factor for residential, clinical, and childcare facilities, among other building types. Daily sunlight exposure calculations can be validated by software or by table values provided.

Glare. The glare provision addresses the negative impact glare has on building occupants' comfort and productivity. The daylight glare probability (DGP) is calculated and used to determine whether anti-glare provisions are required. Rooms where people read from paper or computer screens are of particular concern, and shading, low transmission glazing, or electrochromic glazing may be required.



Conclusion

Daylighting has proven to be beneficial for the health and wellbeing of building occupants. Europe's increased focus on healthy design practices mean that daylighting has become a more standard practice, leading the EU to develop EN 17037. As a European standard, EN17037 only applies to countries in the European Union, but with the increased awareness of healthy design in the US, similar requirements may be adopted here in the future. Reviewing this standard may therefore be a good indication of what the US can expect.