Module 1
Chapter 1
Indoor Air, Thermal and Daylight Quality

Training Material
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3 – Daylight sufficiency

Thematic area	Key Performance Indicator (KPI)		Unit	Reference framework
Daylight sufficiency	KPI 21	Daylight Provision	[%]	EN 17037

Objective

- Daylight can contribute significantly to the lighting needs of any type of building and accordingly, in improving the energy performance of buildings and user health and comfort

Applicability

Building use:

- Residential
- Non-residential

Project stage:

- Design
- Construction / As Built
- In Use

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Description

- This indicator measures the ratio of time in which a target illuminance level is achieved across a fraction of the reference plane compared to the duration of daylight time.

- The indicator is aligned with the EN 17037 CEN European Daylight Standard.

KPI 21 Daylight Provision

Scope

- The indicator's scope encompasses the assessment of ratio of time a target illuminance level is achieved across a fraction of the reference plane compared to the duration of daylight time.

- For new and renovated buildings, The daylight provision is calculated according to EN 17037. Paragraph 5.1.3 and Annex B (Method2) - (The standard requires a minimum daylighting provision of 300 lx of natural light illuminance over 50 % of the space and 100 lx minimum over 95 % of the space, both for more than half of the daylight hours in the year)

- For in-use budlings, the daylight provision is measured according to UNI 10840, EN 12464-1 and UNI 11142.

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Unit of measure

- [%] natural light illuminance .
- EN 17037:2018 states ‘’that a space is considered to provide adequate daylight if a target and minimum illuminance level is achieved across a fraction of the reference plane within a space for at least half of the daylight hours

Table A.1 — Recommendations of daylight provision by daylight openings in vertical and inclined surface

Level of recommendation for vertical and inclined daylight opening	Target illuminance E_T lx	Fraction of space for target level $F_{plane,\%}$	Minimum target illuminance E_{TM} lx	Fraction of space for minimum target level $F_{plane,\%}$	Fraction of daylight hours $F_{time,\%}$
Minimum	300	50 %	100	95 %	50 %
Medium	500	50 %	300	95 %	50 %
High	750	50 %	500	95 %	50 %
NOTE Table A.3 gives target daylight factor (D_T) and minimum target daylight factor (D_{TM}) corresponding to target illuminance level and minimum target illuminance, respectively, for the CEN capital cities.					

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Reference Standards

- The main reference standard for the calculation of the daylight provision is, actually, the EN 17037 – Daylighting in buildings.

- The main reference standards for the measurement of the daylight provision are the UNI 10840 and the EN 12464-1 which describe the measurement method for the average daylight factor.

- Furthermore, the standard UNI 11142 provides relevant information concerning the instruments to be used for the measurement.

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Helpful links

https://www.youtube.com/watch?v=CwLgjjeMYKs