B-AD3

TRANSPARENT CONSTRUCTIONS

Number	B-AD3
Indicator name	Transparent constructions
Area	A
Indicator definition	The indicator is determined on the basis of a combination of qualitative and quantitative parameters of windows, glass doors and glazed walls. The indicator expresses the influence of transparent constructions on the overheating of interiors with regard to the sides of the world.
Indicator unit	Point score
Key words	Windows, doors, glass walls, transparent structures, glass, overheating
Reason for tracking and usability	Hole constructions have the greatest influence on the overheating of the interior. The amount of heat load (as well as heat loss in winter) is mainly affected by the following parameters: The heat transfer coefficient "U" is the inverse value of thermal resistance. The unit of measure is W / m2K, ie how much heat passes through a structure with an area of □□m2 at a temperature difference of 1 Kelvin / degree. The lower the U value, the better the thermal insulation is the material. It is considered separately for the frame and for the glazing. The technical standard specifies values □□for windows, glazed parts of glazed walls, roof windows and doors. The windows are characterized by the value of the heat transfer coefficient for glazing Ug (g – glass), for the frame Uf (f-frame) and as a whole element the value is called Uw (w-window / o window) Solar transmittance "g": solar transmittance, given in%, or up to 0 -1. The value of "g" is a coefficient commonly used in Europe to measure the solar transmittance of windows. A g value of 1.0 represents the full transmittance of all solar radiation, while 0.0 represents a window without the transmission of solar energy. In practice, however, most g values □□are between 0.2 and 0.7, with solar control glazing having a g value of less than 0.5. The current requirement in Slovakia according to STN EN 73 0540-2 for external opening structures is Uw min. 1 W / m2.K from 1.1.2021 is Uw min. 0.85 W / m2K. The limit for window evaluation should therefore be the parameter Uw = 1 W / m2K

Completeness, representativeness, validity

The indicator offers a simplified evaluation combining several parameters, so it should have a relatively high explanatory power. However, it cannot replace accurate measurements in the conditions of a specific site and building and does not replace accurate calculation methods.

Description of data processing

The calculation is based on a combination of qualitative and quantitative parameters:
Qualitative parameters are based on determining the ratio of windows, with different values of Uw, and their orientation to the sides of the world. They express the influence of the window on the overheating of the interior with regard to the world, the quality of the window as a whole element. The quantitative parameter determines the percentage of windows on individual structures - perimeter walls, roof.
One predominant type of window is selected for the whole house.
The value of the indicator (point score) is calculated as a multiple of the points obtained by evaluating the quality of the windows and estimating the share of the area of these windows oriented to the individual sides of the world. E.g. the worst variant is when 100% of the original windows are oriented to the south, then the resulting value will be calculated as: 5 x 1 = 5.
The best variant is when 100% of the windows with triple insulating glazing are oriented to the north, then the resulting value will be calculated as: 1 x 1 = 1.
X-score calculation table (with an example for double-glazed windows, where approximately one third of the double-glazed windows are oriented to the north and two thirds to the west):East: Original windows (Uw ≥ 2) 4; Double glazed windows (Uw ≤ 2) 3; Windows with triple insulating glazing (Uw ≤ 1 W/m2.K) 2; Share of window area (percentage estimate in whole %) 0 %; x = 0West: Original windows (Uw ≥ 2) 5; Double glazed windows (Uw ≤ 2) 4; Windows with triple insulating glazing (Uw ≤ 1 W/m2.K) 3; Share of window area (percentage estimate in whole %) 66 %; x = 2,64North: Original windows (Uw ≥ 2) 2; Double glazed windows (Uw ≤ 2) 2; Okna s trojitým izolačnímWindows with triple insulating glazing (Uw ≤ 1 W/m2.K) 1; Share of window area (percentage estimate in whole %) 33 %; x = 0,66South: Original windows (Uw ≥ 2) 5; Double glazed windows (Uw ≤ 2) 4; Windows with triple insulating glazing (Uw ≤ 1 W/m2.K) 3; Share of window area (percentage estimate in whole %) 0 %; x = 0Total 100%; x = 3,3

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Data source	Project and construction documentation, approval decision, building office, owner's / administrator's own data
Tracking frequency	One-time, update on change
Urban influence	The city/city district/municipality can directly invest in the renovation of transparent parts of the construction of buildings owned by it, or support the renovation of buildings financially or otherwise.
Presentation method	The results will be presented in a uniform KLIMASKEN framework on a five-point scale according to the specified intervals for the X score
Responsibility	Owner, building manager