B-AD2

THERMAL ROOF PROTECTION

Number	B-AD2
Indicator name	Thermal roof protection
Area	A
Indicator definition	The predominant thickness of the thermal insulation material used to insulate the roof of the building
Indicator unit	mm
Key words	Insulation, thermal insulation
Reason for tracking and usability	The method, extent and efficiency of insulation has an impact on greenhouse gas emissions from the energy consumed for heating and cooling. The indicator takes into account in particular the structural composition of the roof cladding, the thickness of the thermal insulation material, the type of roof - flat, sloping with a slope of ≤ 45 ° (for slopes ≥ 45 ° it is considered as for vertical perimeter structures). The thermal resistance of a material represents the ability of the material to retain heat. It depends on the thickness of the material and the thermal conductivity. It is denoted by the letter "R" and the unit of measurement is m2K / W, - how large an area is needed to transfer unit heat at a temperature difference of 1 Kelvin / degree. The transfer of heat from the air to the structure creates a thermal resistance, which can be characterized as a resistance to heat transfer. The total thermal resistance of the structure is then the sum of the thermal resistances of the individual layers and the heat transfer resistances. 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 1 m2 at a temperature difference of 1 Kelvin / degree. The heat conductivity coefficient "λ" (lambda) can be defined as the ability of a material to conduct heat. The unit of measure is W / mK, ie. how much heat passes through the 1 m thick material with a temperature difference of 1 Kelvin (difference 1 K = difference 1 ° C). The lower the value of λ, the better the thermal insulator is the material. The phase shift of temperatures is closely related to the storage capacity of building materials and represents a time shift of extreme temperatures. An example is the situation where the highest outdoor outside temperatures are shifted to a later time and at the same time their value is dampened. The method, extent and efficiency of insulation has an impact

on greenhouse gas emissions from the energy consumed for heating and cooling.
The indicator takes into account in particular the structural composition of the roof cladding, the thickness of the thermal insulation material, the type of roof - flat, sloping with a slope of ≤ 45 ° (for slopes ≥ 45 ° it is considered as for vertical perimeter structures).
The thermal resistance of a material represents the ability of the material to retain heat. It depends on the thickness of the material and the thermal conductivity. It is denoted by the letter "R" and the unit of measurement is m2K / W, - how large an area is needed to transfer unit heat at a temperature difference of 1 Kelvin / degree. The transfer of heat from the air to the structure creates a thermal resistance, which can be characterized as a resistance to heat transfer. The total thermal resistance of the structure is then the sum of the thermal resistances of the individual layers and the heat transfer resistances.
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 1 m2 at a temperature difference of 1 Kelvin / degree.
The heat conductivity coefficient "λ" (lambda) can be defined as the ability of a material to conduct heat. The unit of measure is W / mK, ie. how much heat passes through the 1 m thick material with a temperature difference of 1 Kelvin (difference 1 K = difference 1 ° C). The lower the value of λ, the better the thermal insulator is the material.
The phase shift of temperatures is closely related to the storage capacity of building materials and represents a time shift of extreme temperatures. An example is the situation where the highest outdoor outside temperatures are shifted to a later time and at the same time their value is dampened.

Completeness, representativeness, validity

The indicator is based on the assumption that the basic evaluation can be performed only on the basis of determining the predominant thickness of insulation, regardless of the material used.
When scaling, we do not distinguish between renovated buildings and new buildings. Most of the newly built buildings have packaging structures designed with an insulation system. In the further specification of scaling, it would be possible to state the thermal resistance of the structure, resp. U value, that is, for the overall composition of the roof, this figure is usually given in the project documentation.

THERMAL ROOF PROTECTION

Description of data processing	Thermal insulation materials that are most often used for thermal protection of roof structures are extruded polystyrene EPS and mineral wool MW. Due to very similar values of the thermal conductivity coefficient (λ) for EPS (0.036 W / mK) for MW, we use the term thermal insulation material. To calculate the indicator, we determine the predominant thickness of the thermal insulation material used on the roof of the building. According to the detected value, the building is included in the appropriate interval in the scale. The walls (previous indicator) and the roof are evaluated separately.
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 can directly invest in the renovation of buildings owned by it, 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 set intervals
Responsibility	Owner, building manager