B-AD10

CAPACITY OF THE BUILDING TO ACCUMULATE RAINWATER

Number	B-AD10
Indicator name	Capacity of the building to accumulate rainwater
Area	A
Indicator definition	The indicator expresses the accumulation (detention, storage) capacity related to the building, enabling the storage of filtered rainwater from the roof of the building into the supply for further use in the building and on land in above-ground and underground storage tanks. However, rainwater on the plot is not included in the indicator. If the installation of the tank is not possible or is excluded, the capacity calculation does not have to be done and the building is marked in the worst category in this indicator.
Indicator unit	%
Key words	Water accumulation, water detection, retention tank, accumulation tank, rainwater
Reason for tracking and usability	Creating a supply of filtered rainwater in storage tanks ensures higher self-sufficiency of building users, whether the water is used e.g. for flushing toilets or watering the garden. To determine the indicator, it is necessary to calculate the optimal volume of storage capacity for a given property according to the input parameters, while it is assumed that these are mainly family / apartment houses. Optimally, the capacity is such that all water consumption in the building, which may be saturated with rainwater, is covered by this water - taking into account the total precipitation in the area and the size and type of roof. The calculation can be used to optimize the rainwater accumulation system, see here.
Completeness, representativeness, validity	The indicator is based on the exact technical calculation of the optimal volume of accumulation in terms of the amount of precipitation and the needs of the building. If the "gray" water from the building operation and rainwater is mixed in the storage tanks, a larger storage capacity must be reserved than just when rainwater is stored. The indicator is not sensitive to this situation.

Description of data processing	Indicator is calculated in 4 steps: (according to the technical security of the building TSB-info): 1. Determination of the amount of rainwater collected per year (Q) at a given location. The amount of trapped rainwater Q depends on the amount of precipitation in the area, the size of the roof area, the roof drain coefficient and the efficiency coefficient of the mechanical dirt filter. Q=j*P*fs*ff/1000j - amount of precipitation (mm / year) - determined according to the precipitation map P - usable roof area (m2) - calculated according to the floor plan projection of the roof fs - roof drain coefficient (-) - calculated according to the roofing material ff - mechanical impurity filter efficiency coefficient (-) - calculated according to the manufacturer's data, or a coefficient of 0.9 (90%) is used 2. Required storage volume according to building consumption The volume of the reservoir Vv depends on the number of inhabitants in the household, water consumption per capita and the coefficient of rainwater utilization. The calculation takes into account the necessary water supply for the period of rain break in the form of a coefficient z. Vv=n*Sd*R*z/1000n - number of inhabitants in the household Sd - total consumption of all water per capita and day (l) - usually 140 R - rainwater utilization factor (-) - usually 0.5 (i.e. rainwater utilization to replace 50 % of total consumption) z - coefficient of optimal size (-) - usually 20 3. Required storage volume according to the amount of usable rainwater The volume of the tank VP depends on the amount of collected rainwater. The calculation takes into account the necessary water supply for the period of rain break in the form of a coefficient of. Vp=z*Q/365VP - tank volume according to the amount of usable rainwater (m3) Q - amount of captured rainwater (m3/year) z - coefficient of optimal size (-) - usually 20 4. Calculation of the required storage tank volume For the design of the storage tank size, the smaller of the calculated volumes shall be selected as the minimum required volume VN: VN=min(Vv;Vp)VN - required tank volume (m3) Vv - tank volume according to consumption (m3) Vp - tank volume according to the amount of usable rainwater (m3) The indicator is evaluated as a proportion of the actual volume of the retention tank (tanks) associated with the building (VA) and (VN): X=VA/VN *100 %
Data source	Precipitation map, the processor's own data on the inhabitants of the building and their water consumption, technical and project documentation
Tracking frequency	One time, at a change

Urban influence	The city/city district/municipality can support the construction of rainwater accumulation systems in its own buildings, support the construction of accumulation tanks on the city's/city district's land supplemented from other owners' buildings, join joint accumulation systems from several buildings and support the creation of these systems in other buildings financially or otherwise.
Presentation method	The results will be presented in a uniform KLIMASKEN frame on a five-point scale after including the resulting value of X in the appropriate interval.
Responsibility	Owner, building manager