

Green roof “De Tweeling”

Status	Implemented in 2010
Location	The Netherlands, Gelderland, Nijmegen, Willemskwartier
Spatial info	Kindergarten “De Tweeling”; residential area
Measure type(s)	Green roofs; Water retention; Increase energy efficiency; Urban texture
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Description and Aim

On the extension of an existing kindergarten a green roof (400 m²) was constructed combined with all kind of other sustainable building design aspects (heating, ventilation). This green roof is also an extension of the garden. The kindergarten works on an anthroposophic basis and the children play and sleep outside. The green roof which is visible from the ground helps with the feeling of a green surrounding.

Adaptation to climate change

With the green roof storage of a part of the rain water is arranged, the rest of the rainwater flows into the ground (disconnected building).

A green roof is a good insulation layer in times of heat.

Problems addressed:

Heat wave, heavy precipitation / flooding

Receptor(s):

Built environment, vulnerable groups

Experiences

Functionality:

The impact of a green roof of 400m² is on the site itself: The green roof together with the insulation layers reduces the impact of the sun on the roof and therefore lowers the cooling demands during hot times. The green roof lowers the impact of heavy rainfall, so less rainwater has to be brought underground via the disconnected system. A green roof also has other positive aspects e.g. increasing the biodiversity (flowers, insects) and lowering fine dust loads in the air. Both are aspects the kindergarten uses in its philosophy.

A green roof lasts longer than a conventional roof, e.g. because the vegetation is more sustainable for heat exposure. A green roof of 400 m² has no reducing effects on a scale of a town or town area.

Further synergies/benefits:

A fine example for the municipality's green roof strategy and for communicating that strategy. A fine example of a very sustainable building (climate control, energy supply and water retention).

Costs:

Estimated € 50 to € 60 / m² (total € 20.000 - € 24.000). The municipality gave a subsidy of € 10.000,- (€ 25 / m²).

Funding:

International and local. Subsidy of the municipality for the green roofs. Subsidy of Future Cities for the rain water monitoring devices.

Stakeholder involvement:

Building owner of the private kindergarten, constructor, engineering office of the municipality (for the monitoring).

Acceptance:

The city of Nijmegen uses this example in its green roof strategy and will place pictures of the roof in the second version of the Nijmegen green roof booklet.

Obstacles/restrictions:

In exchange for the local green roof subsidy the city of Nijmegen requested to install a rainwater monitoring device (paid by the municipality). Implementing the device within the construction of the building was difficult.