

Greening Aspeng

Towards a sustainable new city quarter in Vienna, Austria

The new city quarter EUROGATE I+II on the Aspengründe is one of the flagship projects in the City of Vienna to demonstrate how the use of green infrastructure as an integrated tool in the whole planning process can reduce urban heat stress. ENVI-met was used to analyze the impact of different greening scenarios on thermal comfort and to supply input data for building energy modelling.

Within the Smart Cities Initiative of the Austrian Energy and Climate Funds (Klimafond), scientists from ENVI-met, TU Wien and BOKU Wien came together to solve the question – if and how it is possible to bring back nature into the urban space to improve quality of life and urban microclimate.

In the project, the ENVI-met team analyzed different heat stress situations during a typical summer and the resulting thermal conditions at the urban street level. The results of the ENVI-met model were then linked to the building physics model WUFI operated at TU Wien to analyze the impact of the outdoor microclimate on building thermal performance and energy demands.

In close collaboration with urban planners, architects and local residents, different greening scenarios were developed for the Aspengstraße. These scenarios were then analyzed using computer modelling to optimize the ideal quantity and placement for different kinds of urban greening strategies, ranging from classical street trees to green facades and rooftop gardens.

Using only passive green strategies, ENVI-met showed the local air temperature on urban streets could be decreased by 2 K or more both for daytime and night-time scenarios. Using the new Indexed View Sphere (IVS) method, the reduction of reflected solar radiation due to facade greening and its impact on thermal comfort could be analyzed.

FACTS

Client

Smart Cities Initiative of the Climate and Energy Funds of Austria

Implementation period

07/2016-07/2017

Used Features

ENVI-met holistic microclimate model; facade greening model