Green facades are the future

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Green facades and roofs are a current trend in building. Researcher Marc Ottele focused specifically on facades and sees considerable benefits in creating vertical vegetation. Among other things, the plants help to absorb hazardous fine dust from the air. Ottele obtained his doctorate from TU Delft (The Netherlands) on this subject on Tuesday, 28 June 2011.

According to Ottelé, 'So-called vertical greenery is becoming an increasingly attractive option in designing modern buildings. Vertical vegetation contributes to the improvement of the thermal conduct (insulating properties) of buildings, to increased biodiversity as well as to their aesthetic and social aspects, but also helps to reduce air polluting substances such as fine dust particles and carbon dioxide.'

In his research, Ottelé was able to experimentally confirm that plants on exterior walls do indeed absorb fine dust. 'With image manipulating software and recordings taken by an electron microscope, we succeeded in investigating fine dust particles directly on the leaves. We can also identify the size and the number of particles.'
The accumulation of fine dust particles on leave surfaces is important for public health. Densely populated urban areas in particular are affected by dust particles smaller than 10 micrometres, as these particles are inhaled deep into the respiratory tract and are detrimental to health.

Ottelé confirms other potential advantages of green facades. 'Our measurements show that vegetation can also reduce ambient wind speed. The results also demonstrate that vertical vegetation has a positive effect

on the insulating properties of buildings.'

The latter applies particularly to so-called living wall systems. Ottelé explains: 'There are two main types of vertical greenery: green facades and living wall systems. Facades are made green by means of climbing plants, either growing directly against a wall or indirectly by means of constructional aids. Living wall systems are integrated or prefab systems that are fitted to a construction or supporting frames in which the plants take root. Living wall systems are a relatively new and little researched technology.'

Provided by Delft University of Technology