

Bonn, 29 March 2016

Working comfortably in summer heat

Improving thermal comfort in non-air-conditioned buildings

Many existing office and administrative buildings are not air conditioned. This makes it all the more difficult to concentrate on work with increasing temperatures. Scientists have therefore analysed which measures can be used to improve user satisfaction. The BINE-Projektinfo brochure "Keeping a cool head in the summer heat" (04/2016) presents investigations and models to assess the thermal comfort.

The personal perception of users affects the assessment of thermal comfort. This can vary depending on the season. For example, higher room temperatures are tolerated in summer than in winter. It was found in tests that the test persons are more satisfied with the thermal comfort when they can influence the indoor environment themselves, for example by opening windows or individually operating the solar shading or ceiling fans. The scientists conducted field investigations in six office buildings in Karlsruhe and Stuttgart. In addition, experimental series were conducted on various test rigs.

As a result of their investigations, the researchers combined two standard comfort models – the PMV (Predictive Mean Vote) and adaptive models – to form the so-called adaptive balance model (ATHB). In addition to standard factors such as the air temperature, air velocity and floating average value of the outside temperature, this now makes it possible to take psychological or building-related factors into account (for example, the type of air-conditioning). Comfort models serve to objectively evaluate and model the degree of thermal comfort in buildings. They also form part of standards.

The "Passive cooling" project is being jointly carried by scientists at the Karlsruhe Institute of Technology (KIT) and the University of Wuppertal.

The BINE Projektinfo brochure, which can be obtained free of charge from the BINE Information Service at FIZ Karlsruhe, is available online at www.bine.info or by calling +49 (0)228 92379-0. The brochure cover and an additional image can also be downloaded from the press section in this web portal.

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