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Heat protection in buildings

Author: DIⁱⁿ Sabine Erber

Energieinstitut Vorarlberg, Department of Energy-Efficient and Ecological Building for “dasein”

Periods of summer heat are becoming more frequent. Hot days are particularly unpleasant if your own home offers no protection and the warm air builds up in the living spaces. Measures against overheating must be planned for new buildings. In old buildings, a lot can be done, especially when renovating. Careful planning of sun protection measures can help to cope with longer heat waves.

Those who live in optimally insulated buildings have it good - both in summer and winter. With good insulation, the temperature equalisation between outside and inside is greatly reduced. This keeps the heat inside in winter and outside in summer. Even better if there is a heat pump in the house. It can be used for heating in winter and cooling in summer. Additional air conditioning is then not necessary. Here are a few tips for the summer:

- **No sunlight through glass:** Close external sun shading before the sun reaches the glass surfaces.
- **Night ventilation:** Allow cool air to flow through the rooms at night so that building components and furniture cool down.
- **Ventilate like in winter:** If the air outside is hotter than inside, only ventilate briefly during the day.
- **Choose efficient lighting:** LEDs generate significantly less waste heat than light bulbs.
- **Buy energy-saving appliances:** they generate less waste heat.

Effective measures against overheating:

Ideally, **windows** should be vertical and south-facing. This minimises solar radiation in summer and still allows it in winter. Slanted windows, e.g. roof windows, are heat traps in summer. In June and July, the sun also shines from the north and in the evening hours and can heat up the building.

The **size of the windows** should be planned so that sufficient daylight enters the interior but the building does not overheat in summer. The proportion of glass should not exceed 40% of the façade.

Without **shading**, radiant heat enters the interior rooms via the windows and heats them up. All directions are affected in May, June and July. Shading the glass surfaces prevents the transfer of radiant heat. External systems such as external blinds, shutters, awnings or balcony projections are particularly efficient. They are three times as effective as internal shading.

A shady tree can also reduce the amount of sunlight on window areas.

Good **thermal insulation** not only saves heating energy in winter, but also protects against heat in summer. The incoming energy is passed on to the inside with a time delay and with fewer temperature fluctuations.

Solid building components absorb heat slowly and delay overheating. However, these buildings also cool down more slowly if they overheat.

Green façades and roofs have a positive effect on the microclimate around the building. They increase humidity, lower temperatures on the façade and bind dust and air pollutants.

Not every roof is suitable for a green roof, which places an additional load on top. The advice of a structural engineer should be sought for retrofitting.