

Air humidity

The capacity of the air to absorb water varies with the temperature. The higher the temperature, the more water the air can absorb. The relative humidity is given in percent to express the amount of water in the air. Knowing the relative humidity makes it possible to evaluate the risk of mould forming, to evaluate how much water the air can absorb without becoming saturated, or to see if the temperature can be reduced without risking the precipitation of water vapour (see dew point).

Dew point

The dew point is expressed in °C and indicates the temperature when the relative humidity reaches 100%, and water vapour (condensation) is formed.

Moisture in material

Water is to be found in most hygroscopic materials, i.e. in most building materials with the exception of metals and certain plastics. The water is partly bound to the solid mass, and partly in the pores in the material.

The amount of moisture in material is sometimes expressed as the moisture content, and sometimes as the moisture quotient. The moisture content (kg/m^3) is the amount of water in kg per m^3 of material. The moisture quotient is the quotient in % between the weight of the water in the damp material and the weight of the dry material. The moisture quotient can be determined by weighing, drying and weighing again.

In wood the moisture quotient can also be measured with electronic instruments, since the moisture quotient varies with the electrical resistance in the wood.

In concrete the moisture quotient can be measured by drilling a hole, vacuum cleaning it, sealing it, and leaving it for a few days until a state of equilibrium is achieved (see moisture balance). The relative humidity in the drill hole can then be measured, which in turn will give the moisture quotient in the concrete if the sorption curve for this type of concrete is known. It is important to vacuum clean well, seal well round the hygrometer, and to leave it until a state of equilibrium is achieved in the drill hole. Wait at least half an hour before reading the measurement value.

Moisture balance

Most materials are hygroscopic, i.e. the moisture content is influenced by the ambient relative humidity and temperature in such a way that the moisture in the material and the surroundings strive towards equilibrium. In other words there is a moisture content balance in the material that corresponds to a specific relative humidity in the air. This relationship is normally given in sorption curves for respective materials. It is to a certain extent influenced by the temperature, but is normally given at +20°C.