What is Humidity?

Humidity refers to the amount of water vapour present in the air. In the context of buildings, this is a crucial factor for both comfort and a healthy indoor environment. It's typically measured as Relative Humidity (RH), expressed as a percentage. This value represents the ratio of the current water vapour content to the maximum amount of water vapour the air can hold at a specific temperature. For example, an RH of 50% at 20°C means the air contains half the amount of moisture it could possibly hold at that temperature.

Controlling humidity is essential in UK homes, which are often susceptible to high moisture levels due to their age, construction, and climate. Too much moisture can lead to a range of problems, including **condensation**, **mould growth**, and **dust mite proliferation**, which can trigger or worsen respiratory issues like asthma. Conversely, air that is too dry can cause discomfort, dry skin, and static electricity.

A healthy indoor humidity level for a UK home is generally considered to be between 40% and 60% RH. This is a key metric for building consultants and homeowners to monitor, particularly when undertaking retrofit or renovation projects that can significantly alter a home's airtightness and ventilation.

Practical Examples:

- **Retrofit Projects:** When a UK home is retrofitted with new insulation and double-glazing, it becomes much more airtight. This can trap moisture generated by daily activities (e.g., cooking, showering, drying clothes), leading to a rapid rise in indoor humidity. Without a corresponding improvement in the ventilation system, this can lead to chronic condensation on windows and cold surfaces, eventually causing mould growth on walls and furnishings.
- **Building Regulations:** Approved Document F (Ventilation) of the Building Regulations for England provides guidance on the provision of ventilation for new and existing homes. While it doesn't specify a target humidity level, its core purpose is to ensure that a building has adequate ventilation to manage moisture and prevent its buildup, thereby mitigating the risk of dampness and mould. Similarly, Approved Document C (Site preparation and resistance to contaminants and moisture) addresses the prevention of moisture from the ground and other sources.

Related Terms

- **Absolute Humidity:** The total mass of water vapour in a given volume of air, measured in grams per cubic metre (g/m3). Unlike relative humidity, it is not dependent on temperature.
- **Dew Point:** The temperature at which air must be cooled for it to become saturated with water vapour, causing condensation to form. When a surface, such as a cold window pane or an uninsulated external wall, reaches the dew point temperature, condensation will form on it.
- **Condensation:** The process by which water vapour in the air turns back into liquid water. This is a common problem in poorly ventilated UK homes and is a primary cause of mould and damp.
- **Vapour Barrier/Vapour Control Layer (VCL):** A material used in building construction to prevent the movement of moisture (in the form of water vapour) through walls, floors, and ceilings. It is essential in modern, highly insulated buildings to prevent moisture from reaching and damaging the structure.
- **Hygroscopic:** The ability of a material to absorb and retain moisture from the air. Many

common building materials, such as timber and plaster, are hygroscopic.
- **Interstitial Condensation:** Condensation that occurs within a building element, such as a wall or roof, rather than on its surface. This often happens when warm, moist air penetrates the structure and cools, potentially leading to long-term damage and reduced thermal performance.
- **Moisture Control:** The overall strategy of managing moisture within a building, which includes ventilation, insulation, and the use of vapour control layers, all aimed at preventing problems associated with excess humidity.