

What is Condensation?

Condensation is the physical process where water vapour in the air transforms into liquid water when it comes into contact with a surface or air that is at or below the dew point temperature. This phenomenon occurs due to the cooling of air, reducing its capacity to hold moisture, leading to the formation of water droplets.

In the context of UK house building, residential retrofits, and home renovations, condensation is a critical consideration due to its impact on indoor air quality, building durability, and occupant health. When warm, moist air encounters cooler surfaces (e.g., windows, walls, or ceilings), condensation forms. If unmanaged, it can lead to mould growth, dampness, and structural damage.

Synonyms: Dew formation, Moisture deposition

Practical Examples:

1. **Windows:** Condensation often forms on single-glazed windows during colder months because the glass surface temperature drops below the dew point.
2. **Walls:** Poorly insulated walls in older homes can become cold enough to cause condensation, especially in areas with high humidity, such as kitchens and bathrooms.
3. **Lofts:** Inadequate ventilation in loft spaces can trap moist air, leading to condensation on roof timbers and insulation.

Related Terms:

1. **Relative Humidity:** The amount of moisture in the air compared to the maximum it can hold at a given temperature.
2. **Dew Point:** The temperature at which air becomes saturated with moisture, leading to condensation.
3. **Vapour Barrier:** A material used to prevent moisture from passing through walls, ceilings, or floors.
4. **Ventilation:** The process of introducing fresh air to dilute and remove moisture-laden air.
5. **Mould:** A fungus that grows in damp conditions, often exacerbated by condensation.
6. **Building Regulations Part F:** UK regulations governing ventilation in residential buildings to control moisture and indoor air quality.
7. **Approved Document C:** UK guidance on resistance to contaminants and moisture, including condensation management.

Real-World Applications:

1. **Retrofitting:** Installing mechanical ventilation systems (e.g., MVHR) to reduce condensation in energy-efficient homes.
2. **Extensions:** Using vapour barriers and insulated plasterboard to prevent condensation in new builds.
3. **Renovations:** Improving airflow by adding trickle vents to windows or extractor fans in high-humidity areas.