Why is there condensation on my windows despite having trickle vents?

Condensation on windows occurs when warm, moist air inside your home meets the cold surface of the glass, even with trickle vents. Trickle vents alone may not provide sufficient ventilation to manage high humidity levels, especially in poorly insulated or highly airtight homes. Factors like cooking, showering, and drying clothes indoors can exacerbate moisture buildup, leading to condensation.

Understanding Condensation and Trickle Vents

Condensation is a common issue in UK homes, particularly during colder months. It happens when warm, moisture-laden air comes into contact with a cold surface, such as a window pane, causing water droplets to form. While trickle vents are designed to provide background ventilation, they may not always be enough to combat condensation effectively. Here's why:

1. **Inadequate Ventilation**: Trickle vents are small, controllable openings integrated into windows or walls. They allow a minimal flow of fresh air into the home, which can help dilute indoor pollutants and moisture. However, in homes with high humidity levels—often caused by activities like cooking, showering, or drying clothes indoors—trickle vents may not provide sufficient airflow to prevent condensation.
2. **High Humidity Levels**: Modern homes are increasingly airtight to improve energy efficiency. While this reduces heat loss, it also traps moisture indoors. Without adequate ventilation, humidity levels can rise, leading to condensation on cold surfaces like windows.
3. **Cold Surfaces**: Single-glazed or poorly insulated windows are more prone to condensation because their surfaces are colder. Even with trickle vents, the temperature difference between the warm indoor air and the cold glass can cause moisture to condense.
4. **Occupant Behaviour**: Closing trickle vents to reduce drafts or noise can negate their effectiveness. Additionally, failing to use extract fans in kitchens and bathrooms can lead to excessive moisture buildup.

The Limitations of Trickle Vents

Trickle vents are a passive ventilation solution, relying on natural airflow to ventilate a home. While they can help reduce condensation in some cases, they have limitations:

- **Low Airflow**: Trickle vents typically provide a minimal airflow rate, which may not be sufficient to manage high humidity levels in modern, airtight homes.
- **Weather Dependency**: Their effectiveness can vary depending on external weather conditions, such as wind speed and temperature.
- **Occupant Reliance**: Trickle vents require occupants to leave them open, which may not always happen due to concerns about drafts, noise, or security.

Solutions to Combat Condensation

To effectively manage condensation, consider the following strategies:

1. **Improve Ventilation**:
    - **Continuous Mechanical Extract Ventilation (dMEV)**: Systems like the ARIA

decentralised dMEV provide continuous extraction of moist air from wet rooms, reducing humidity levels and preventing condensation.
    - **Mechanical Ventilation with Heat Recovery (MVHR)**: Centralised systems like RESPIRO or decentralised options like FLUXO and AUREN not only extract stale air but also supply fresh, filtered air while recovering heat, ensuring efficient ventilation and energy savings.
2. **Control Humidity**:
    - Use extract fans in kitchens and bathrooms during and after activities that generate moisture.
    - Avoid drying clothes indoors or use a dehumidifier to reduce humidity levels.
3. **Upgrade Insulation**:
    - Replace single-glazed windows with double or triple-glazed units to reduce the temperature difference between indoor air and window surfaces.
    - Improve wall and roof insulation to maintain warmer indoor temperatures.
4. **Monitor and Maintain**:
    - Regularly check and clean trickle vents to ensure they are functioning correctly.
    - Ensure extract fans are properly maintained and used consistently.

Why Mechanical Ventilation is Superior

Mechanical ventilation systems, such as dMEV and MVHR, offer significant advantages over trickle vents:

- **Controlled Airflow**: These systems provide consistent, controlled ventilation, ensuring adequate airflow to manage humidity levels effectively.
- **Heat Recovery**: MVHR systems recover heat from extracted air, reducing energy costs while maintaining indoor air quality.
- **Filtered Air**: Mechanical systems can filter incoming air, removing pollutants and allergens for healthier indoor environments.

Upgrade your home’s ventilation system today to eliminate condensation and breathe cleaner, healthier air.