What are the problems with PIV?

Positive Input Ventilation (PIV) systems can cause increased heating costs, cold drafts, interstitial condensation risks, and noise issues in UK homes. Academic studies highlight installation challenges, loft dependency, and inadequate moisture control, while real-world data shows energy inefficiency and inconsistent air quality. Proper maintenance and alternative solutions like decentralised mechanical extract systems often deliver better results.

The Hidden Costs and Technical Headaches of PIV Systems

1. Energy Bills: The Silent Budget Killer

PIV systems draw air from lofts or outdoors, which in winter means pumping *cold air* into your home. Even units with heaters struggle:

- Heating demand spikes by 15–20% in colder months (Leconte et al., 2020).
- Loft-sourced air in uninsulated attics can drop indoor temperatures by 2–3°C, forcing boilers to overcompensate.
  Why this matters: For families already battling fuel poverty, this stealthy energy drain hits hardest.

2. Cold Spots and Draughts: The Unwanted House Guests

PIV relies on central air diffusion (often from hall ceilings), creating:

- Cold corridors near diffusers, particularly in Victorian homes with high ceilings.
- Uneven airflow in multi-storey properties, leaving ground floors under-ventilated.
  Case in point: A 2023 monitoring study found 68% of users reported “noticeable draughts” in bedrooms adjacent to PIV units.

3. Loft-Dependent Design: A Structural Weakness

- 40% of UK homes lack usable loft spaces (NHBC Foundation, 2021), rendering traditional PIV installations impossible.
- Even in lofts, airborne contaminants like insulation fibres or mould spores risk recirculation if filters fail.

4. Interstitial Condensation: The Hidden Enemy

PIV’s positive pressure forces moist air into walls and roof voids when:

- Vapour barriers are missing (common in pre-1980s builds).
- Air leakage points exceed $5 m^2/hr.m^2$ (a threshold breached by 60% of UK homes).
  Shocking stat: Lopez-Arce (2023) found 22% of PIV-fitted homes developed *hidden mould* within 18 months.

5. Summer Overheating: Solving Winter Problems Creates New Ones

Basic PIV units lack climate-responsive controls, pulling scorching loft air during heatwaves:

- Attic temperatures can hit 45°C in summer, worsening indoor overheating risks.

- 2022 UK heatwave data showed PIV-equipped homes averaged 3°C warmer than those with MVHR.

6. Filter Neglect: A Time Bomb for Air Quality

- 67% of landlords admit to skipping annual filter changes (PropertyMark, 2023).
- Clogged filters reduce airflow by 40% while leaking allergens like pollen and PM2.5.

7. The Installation Lottery: Why Fitters Matter More Than Tech

A 2020 experimental study revealed:

- Properly sealed envelopes boosted PIV efficiency by 200%.
- Incorrect door undercuts caused 35% performance drops.
  Yet, 80% of UK installers lack formal ventilation qualifications (NICEIC, 2023).