What is Decarbonisation?

Decarbonisation refers to the systematic process of reducing or eliminating carbon dioxide (CO_2) and other greenhouse gas emissions from buildings, energy systems, and industrial processes. In the context of UK social housing, it specifically involves transitioning housing stock away from fossil fuel dependency toward low-carbon energy sources and implementing energy efficiency measures to minimise carbon emissions associated with heating, ventilation, and power consumption.

Detailed Explanation

Decarbonisation in social housing represents a comprehensive approach to reducing the carbon footprint of residential properties through strategic interventions. This process involves:

1. **Energy Efficiency Improvements**: Enhancing building fabric performance through insulation, draught-proofing, and high-performance windows to reduce heat loss and energy demand.
2. **Low-Carbon Heating Systems**: Transitioning from gas boilers to renewable heating technologies such as heat pumps, solar thermal systems, and district heating networks.
3. **Ventilation Integration**: Implementing mechanical ventilation with heat recovery (MVHR) systems that maintain indoor air quality while minimising heat loss, as outlined in Approved Document F (2021 edition).
4. **Renewable Energy Generation**: Installing solar PV panels and other renewable technologies to generate clean electricity on-site.

Practical Application in Social Housing

A typical decarbonisation project in social housing might involve:

- External wall insulation installation to improve thermal performance
- Replacement of gas boilers with air source heat pumps
- Installation of mechanical ventilation with heat recovery systems
- Solar PV installation on suitable roof spaces
- Smart heating controls and energy monitoring systems

The Social Housing Decarbonisation Fund (SHDF) provides government support for such projects, focusing on properties with Energy Performance Certificate (EPC) ratings below C.

Building Regulations Context

Decarbonisation aligns with several Building Regulations:

- **Part L (Conservation of Fuel and Power)**: Sets standards for energy efficiency and carbon emissions reduction
- **Part F (Ventilation)**: Ensures adequate ventilation while maintaining energy efficiency
- **Future Homes Standard**: Proposed standards aiming for 75-80% lower carbon emissions compared to current regulations

Essential Related Terms

1. **Retrofitting** – The process of adding new technology or features to older properties to improve energy performance
2. **Energy Performance Certificate (EPC)** – A rating scheme that measures a home's energy efficiency
3. **Mechanical Ventilation with Heat Recovery (MVHR)** – A system that provides fresh air while recovering heat from exhaust air
4. **Fabric First Approach** – Prioritising building envelope improvements before mechanical systems
5. **Heat Pump** – An electric heating system that extracts heat from air, ground, or water
6. **Solar Photovoltaics (PV)** – Technology that converts sunlight into electricity
7. **Whole House Approach** – Considering all energy uses and systems holistically rather than in isolation