

# Ventilation (Social housing sector)

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# Belfast TSB Retrofit for the Future project



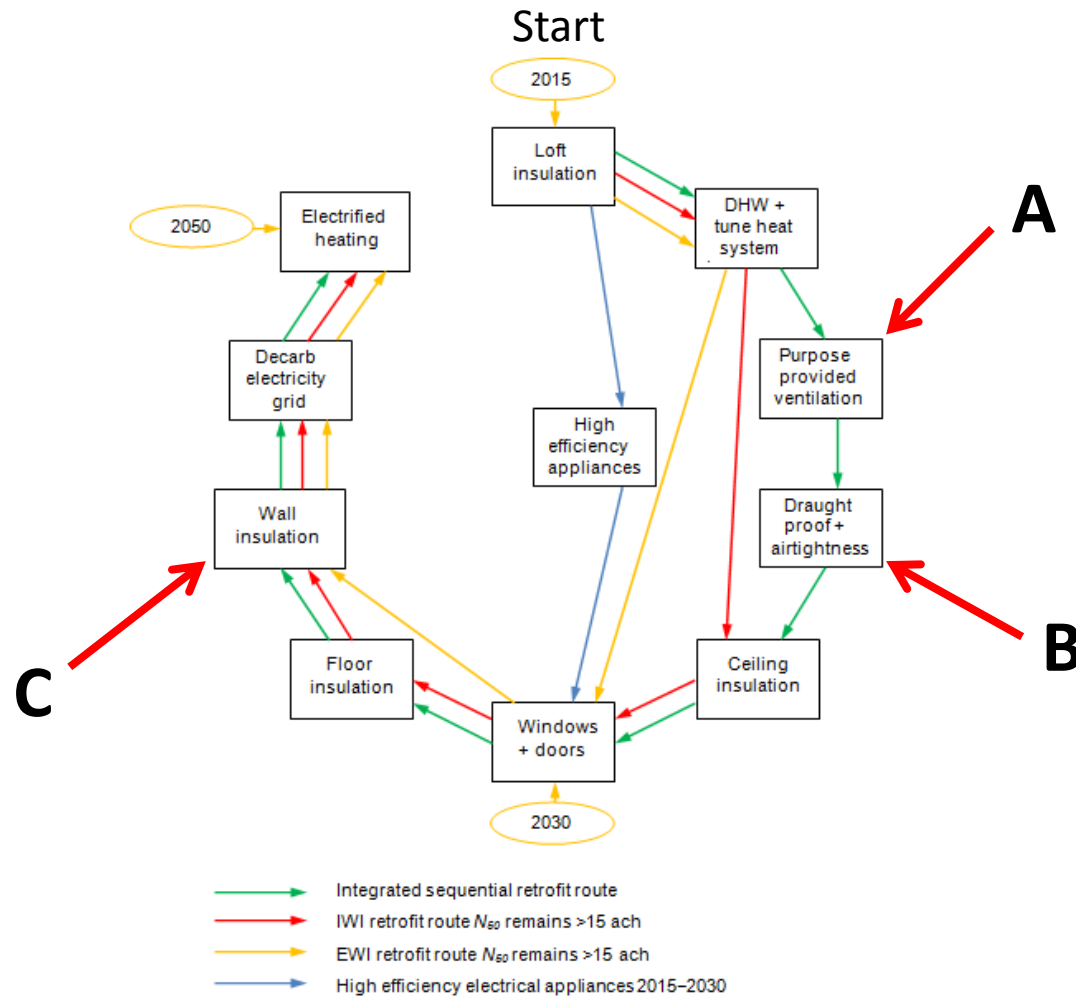
- Reduce energy and CO2 emissions by 80%
- Social house
- Insulation
- Airtightness
- Ventilation
- Heating cost £110/year

# Retrofit problems...

- Condensation, damp, mould
- Damage to interior, furniture, clothes...
- Occupant health...
- Higher indoor temperatures
- Higher energy bills



# Installation sequence



# Wrong sequence...

**theguardian**

Asthma could be worsened by energy-efficient homes, warns study

Lack of ventilation caused by better insulation could create spike in indoor pollutants, research warns

**THE IRISH TIMES** Wed, Oct 19, 2016

Sort it: Poor ventilation can have serious health consequences

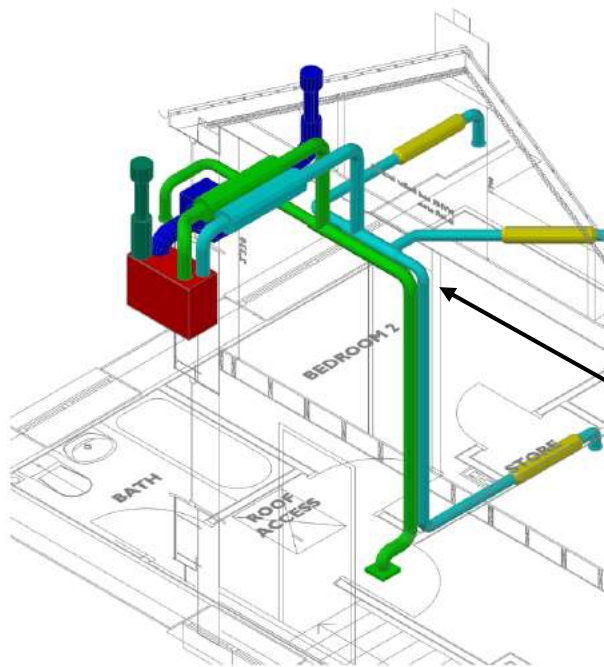
There is too much hot air in our energy-efficient homes

**The Telegraph** Sunday 30 April 2017

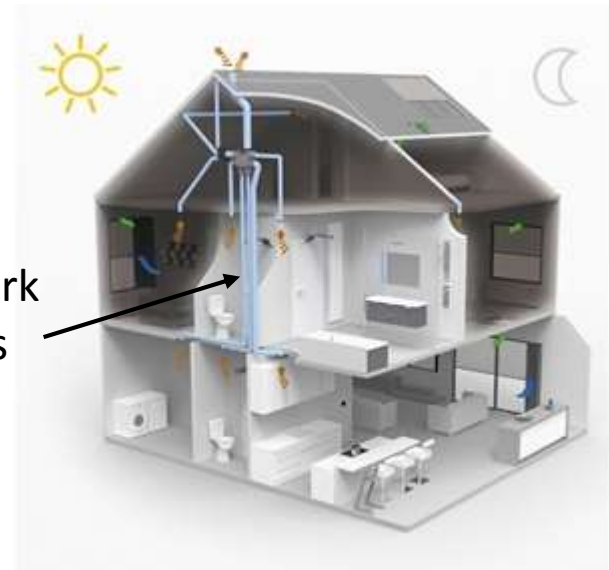
Could the cavity-wall insulation scandal rival PPI?

# Whole-house systems

Mechanical Ventilation with Heat Recovery (MVHR)



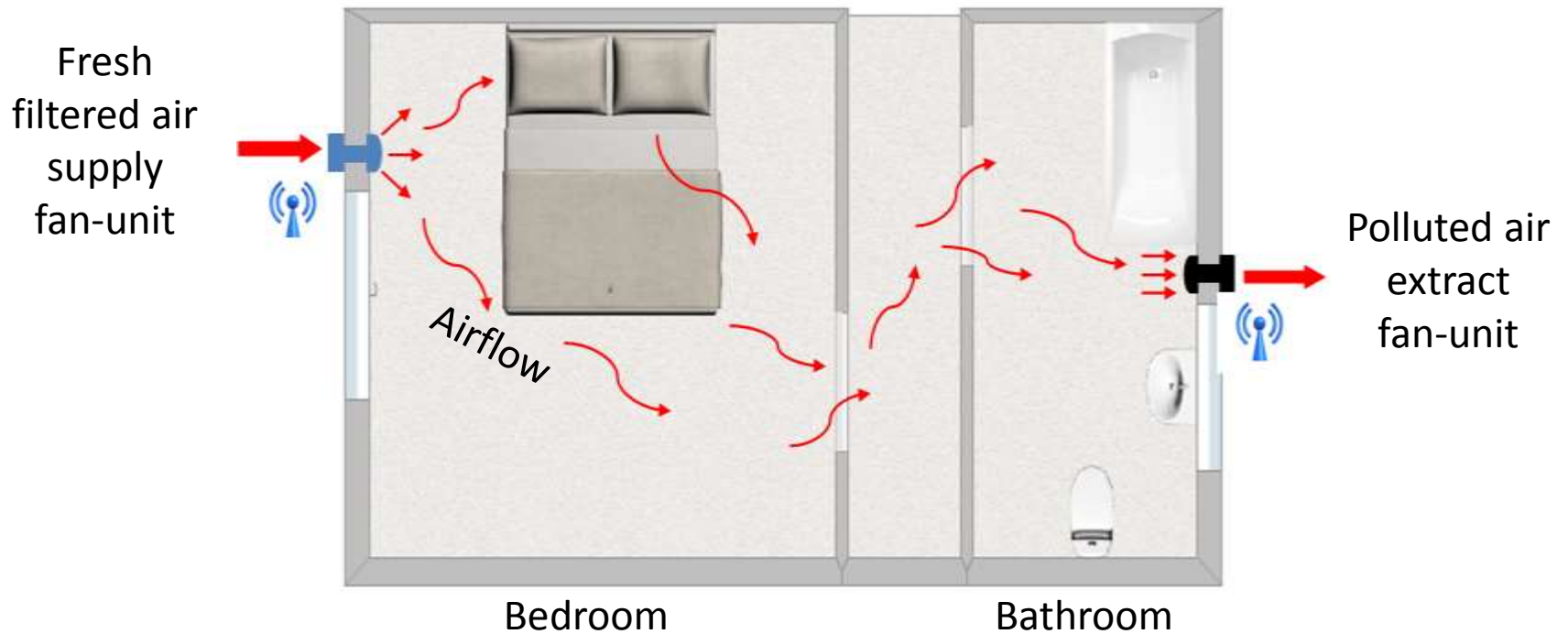
Demand Controlled Ventilation (DCV)



Ductwork controls airflow

# Smart-Vent concept

Wireless signals control airflow



# Prototypes



Development  
co-funded by  
Innovate UK and  
Invest NI





# Monitoring

- Cloud-based user interface
- Real time monitoring

Device 21

- Data for each room on dashboard

Inside Sensors	Outside Sensors	Supply Unit Status
Temperature: 23.12°C	Temperature: 22.75°C	Fan Status: 3
Humidity: 48.1%	Humidity: 50.9%	Fan Speed: 1
Pressure: 994 hPa	Pressure: 995 hPa	
CO2: 669 ppm		
VOC: 491 ppm		
PIR Alarm: 1		

- Social housing asset management
- Detects poor living conditions

# Cost benefit

- Simple installation
- Guaranteed performance
- Cost saving >60%



	Installed	Elec + filter/a	Cost/a (20 yr)
Current sol.	>£4,000	£125	£325
Smart-Vent	<£2,000	£32	£132

# Thank you

Peter Keig

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