

# Retrofit

Process + Community + Scale

Matthew Clubb

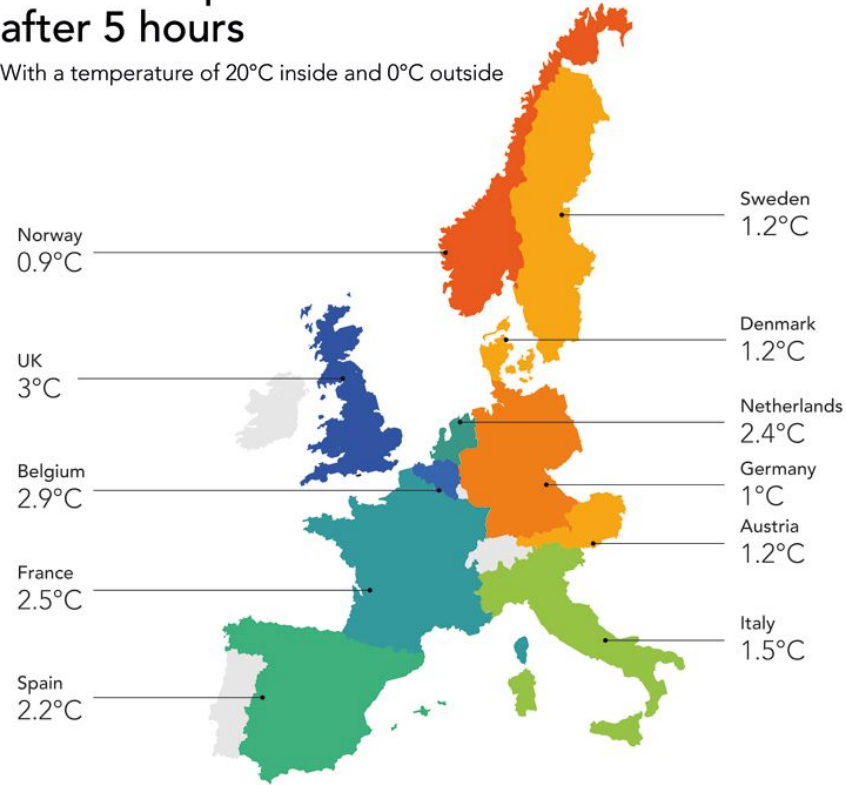
mwclubb | Architectural Design



# Home temperature loss after 5 hours

tado°

With a temperature of 20°C inside and 0°C outside



Based on a sample of over 80,000 European homes

## Aberdeen & Aberdeenshire

>50%

of homes are in fuel  
poverty

54%

of homes have no  
wall insulation

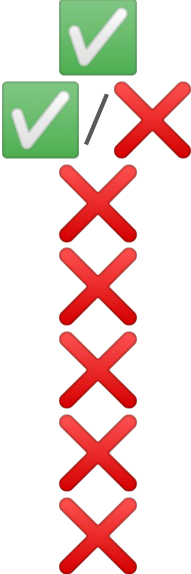
# Fabric First!..... (a word about heat pumps)

- Reduce emissions
- Reduce bills & fuel poverty
- Reduce infrastructure burden
- Increase thermal comfort
- Increase internal air quality
- Increase building resilience
- Increase jobs market

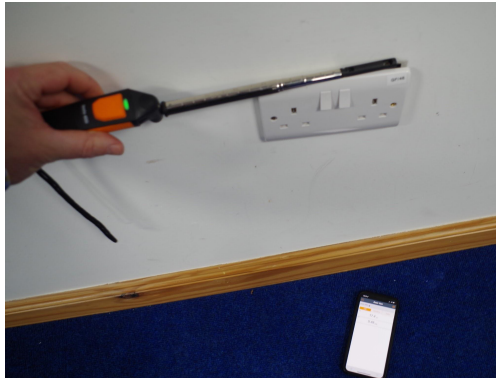
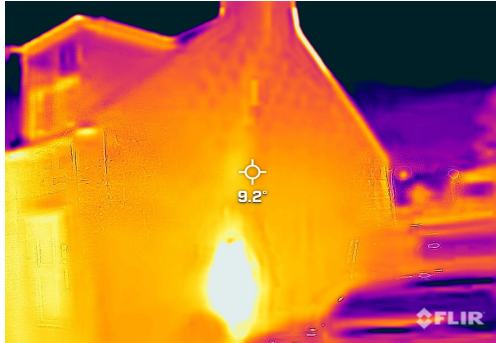
## Fabric First (Insulation!)



## Heat Pumps



# Methods

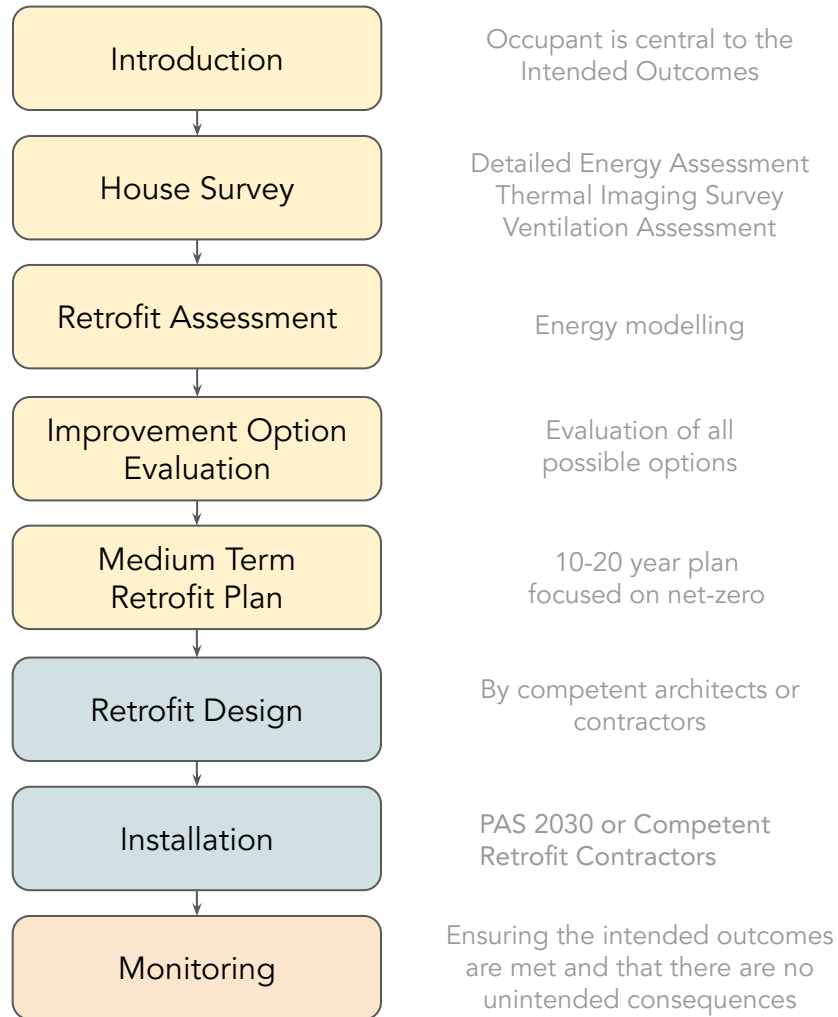


# The Whole House Retrofit Process

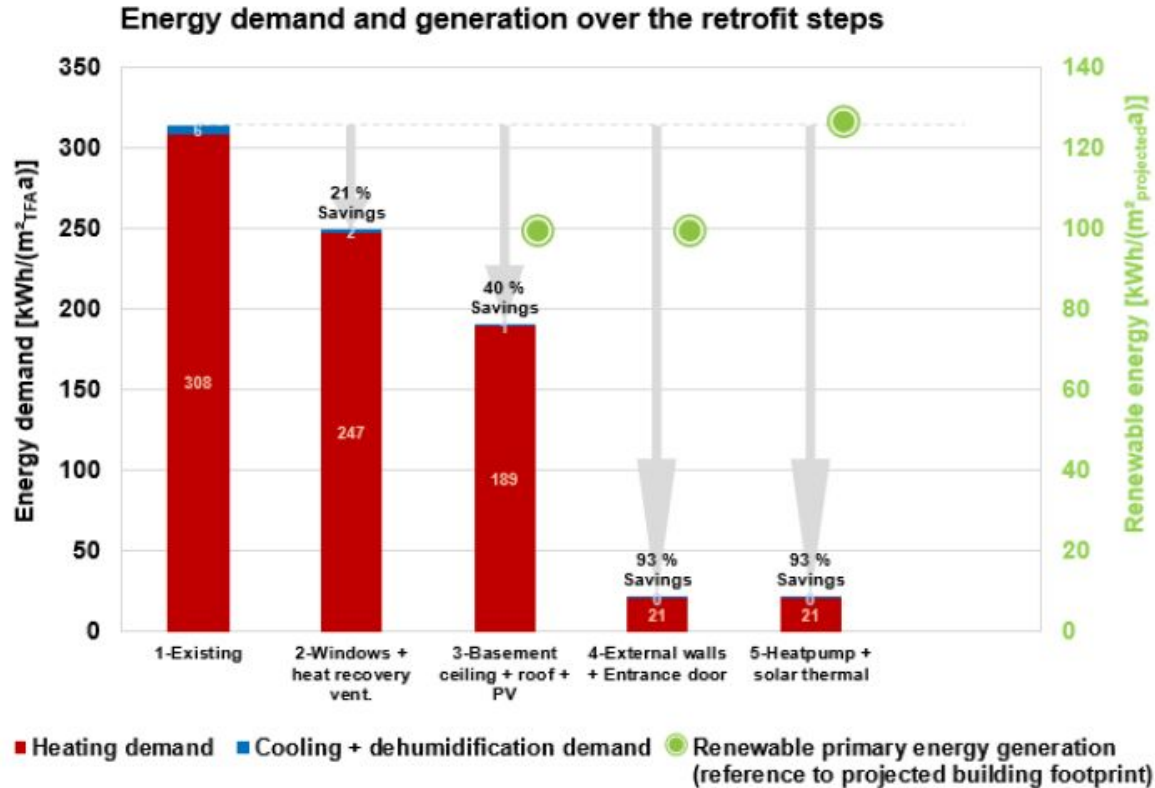
PAS2035 Retrofitting Dwellings for Improved Energy Efficiency

Retrofit Coordinator role is key

Logged in the national TrustMark Data Warehouse



# The Retrofit Plan



# Live Projects

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Architectural Design

## Traditional Granite

- Roof insulation
- Triple Glazing
- Extension insulation

**Stage 1**  
**35% Saving**

**Stage 2**  
**48% Saving**  
**Heat Pump Ready**

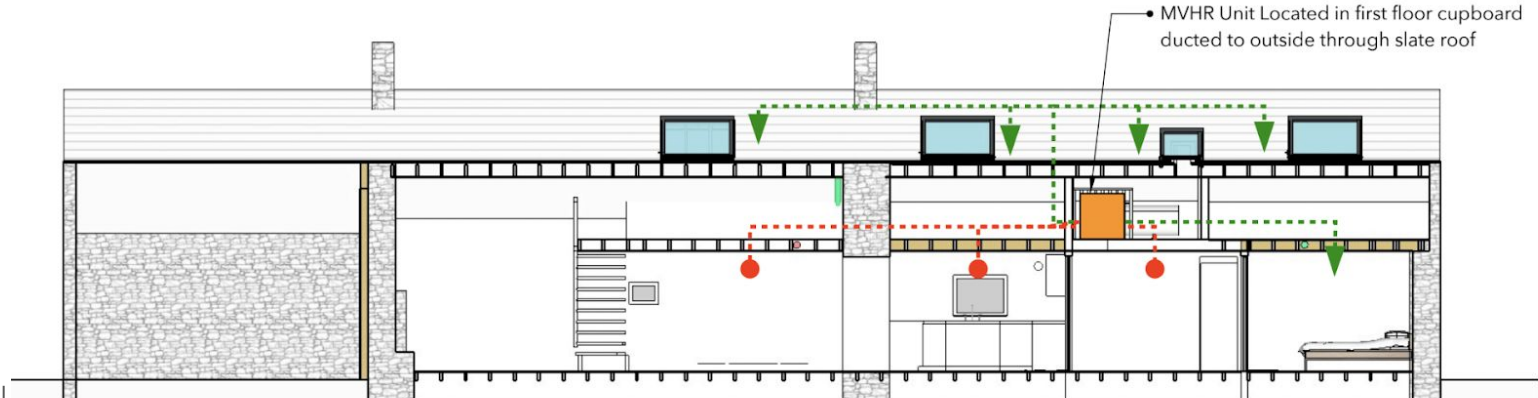




## Traditional Granite

- Airtightness
- MVHR
- Triple Glazing

**Stage 1**  
**47% Saving**  
**Heat Pump Ready**



# Live Projects

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Architectural Design

## Masonry & Timber frame

- Loft Insulation
- Airtightness measures
- Roof insulation
- Underfloor Insulation
- Ventilation improvements

**Stage 1**  
**40% Saving**  
**Heat Pump Ready**

**Stage 2**  
**70% Saving**



Aberdeen



**Community led  
cooperative**

1. Public Awareness
2. Supply Chain and skills
3. Retrofit Plans

Edinburgh



Community Questionnaire  
<https://edinbric.scot/>

Glasgow



**Community led  
cooperative**

## Retrofit at Scale



Questions please