# What the Residential Building Sector needs from Vacuum Insulation

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IVIS 2009 www.ivisnet.org

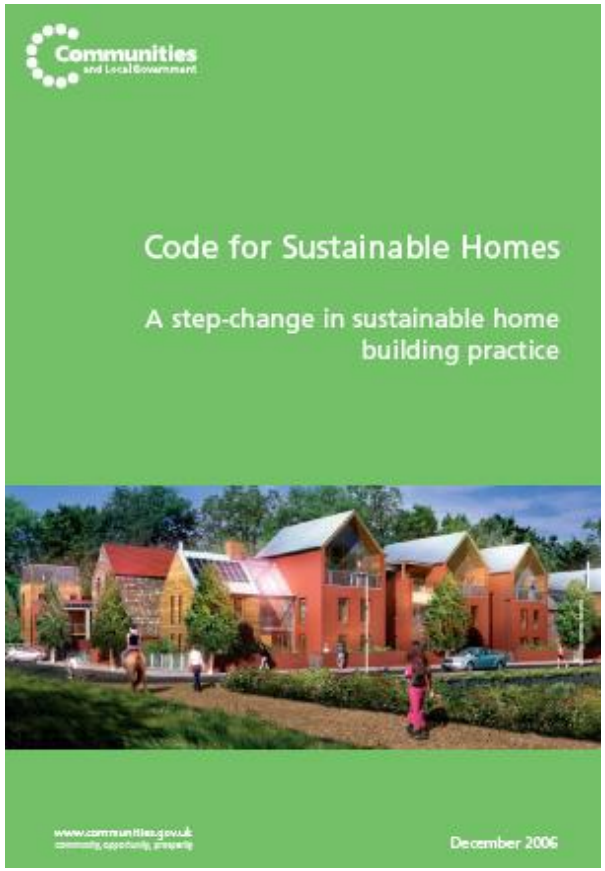
H+H

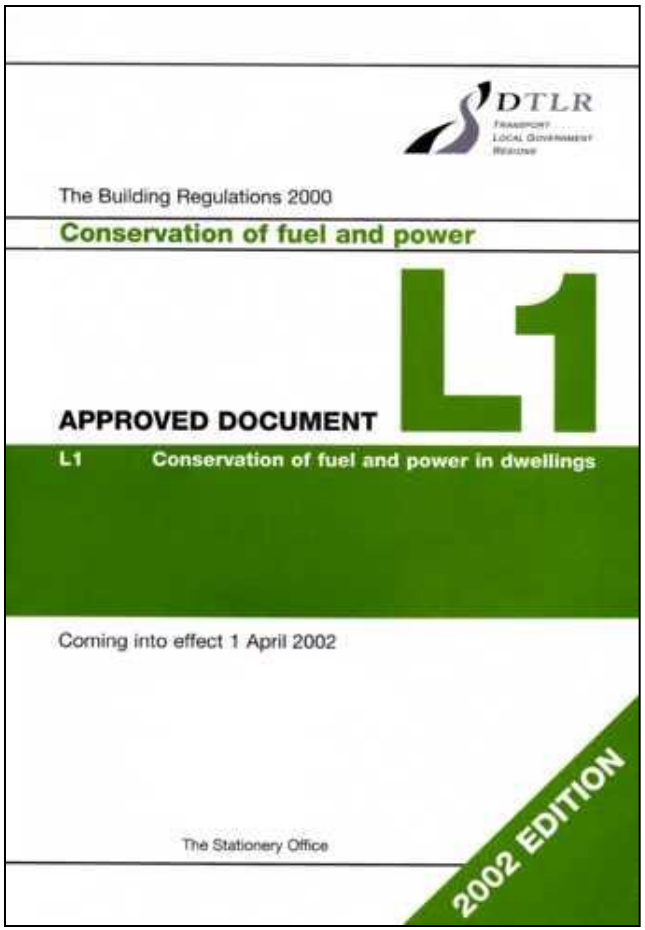
# Cost of Construction

Cost also to include

- Primary cost of materials
- Speed of build
- Extra land take

# Regulatory Impact



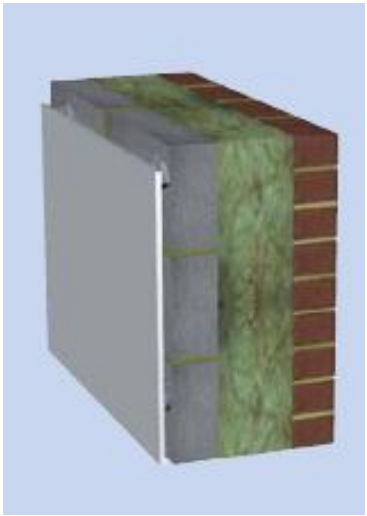



# UK Government Target for new housing

- 2010- 25% CO2 reduction compared to current regulations
- 2013- 44% CO2 reduction compared to current regulations
- 2016- ‘Zero Carbon’ houses.

- This has an affect on.
- Thermal envelop.
- Airtightness
- Linear thermal bridging

# Insulation thickness required for reduced U-values

| Wall construction | U-value | Insulation thickness needed (mm) block with λ = 0.11 | 0.15 | 0.19 | 0.57 | 1.28 |
|---|---|---|---|---|---|---|
|  | 0.28 | 75 | 80 | 90 | 100 | 100 |
| | 0.25 | 95 | 100 | 105 | 115 | 115 |
| | 0.20 | 130 | 135 | 135 | 165 | 165 |
| | 0.15 | 215 | 220 | 225 | 235 | 240 |
| | 0.10 | 300 | 300 | 305 | 315 | 320 |

# Housing Density

Walls at U=0.15W/m2K

Thickness = 400mm

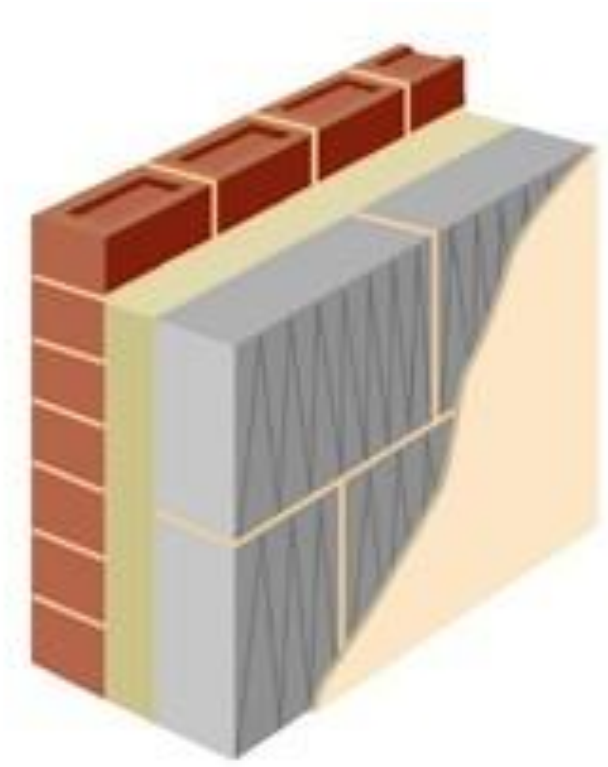
5% less houses per site?

# What life of product do we need?

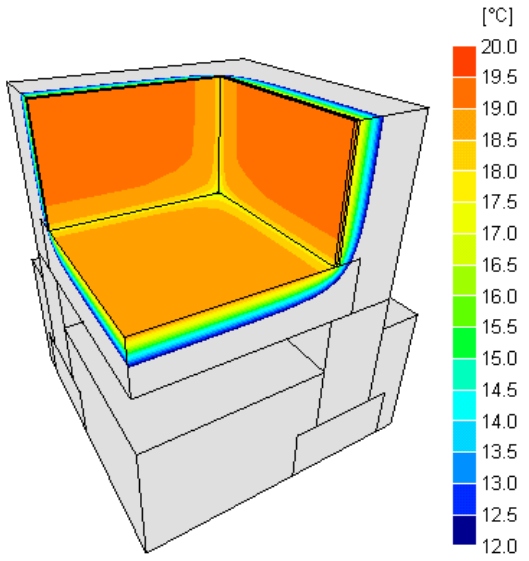
Are 100 years needed?

# External Insulation

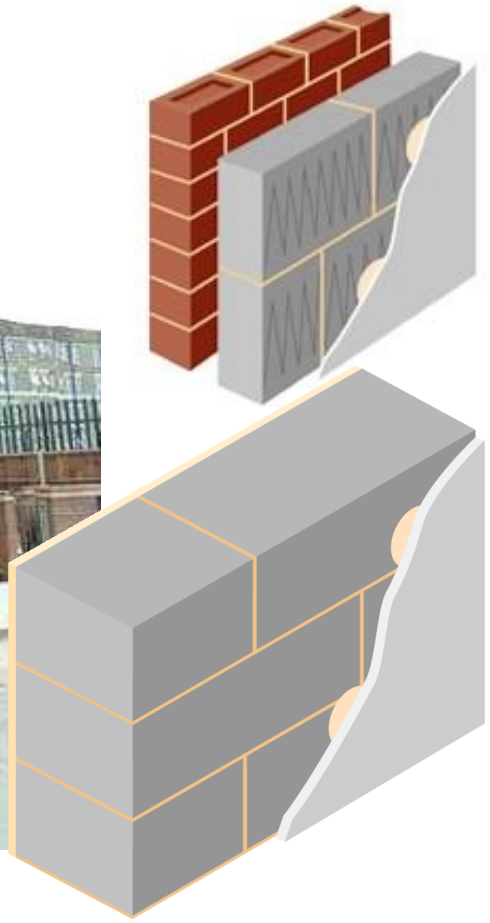
# Cavity Walls



# Placing VIM in cavity

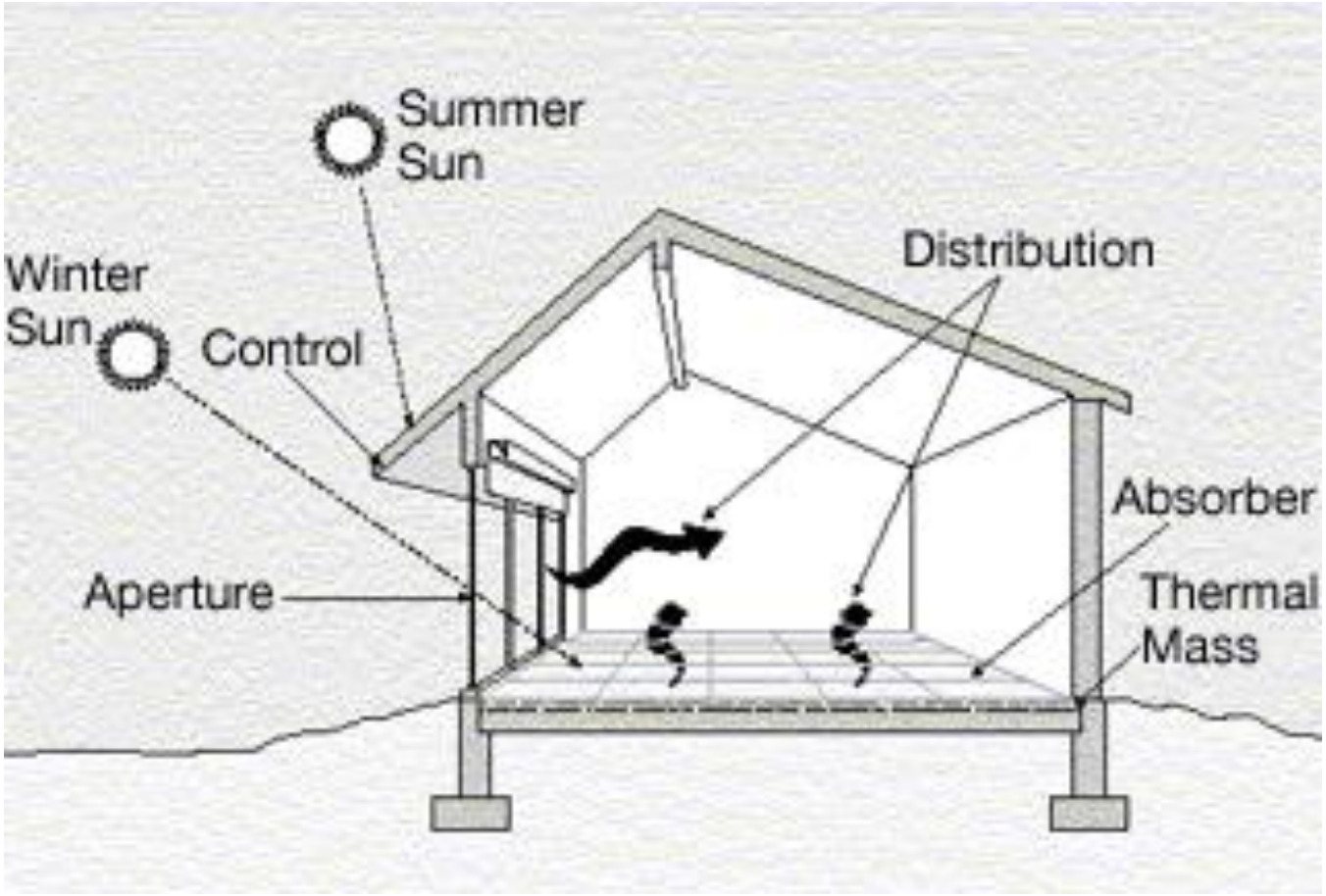



# Internal Insulation

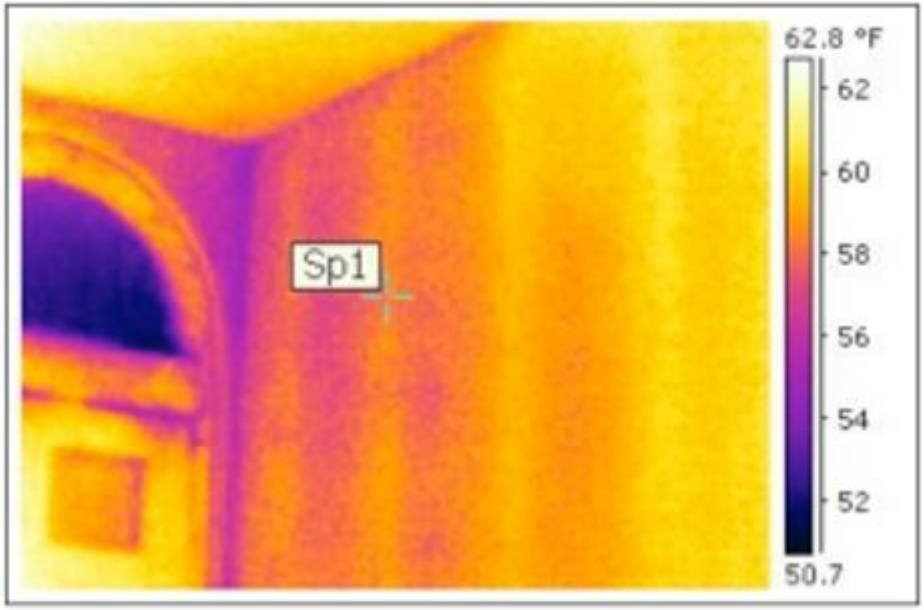


# Internal boards and insulation

# Thermal mass



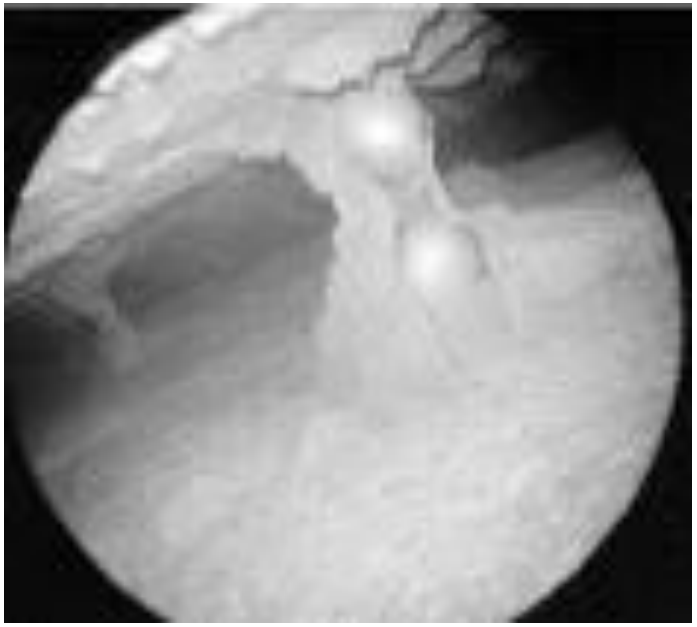
# Accreditation



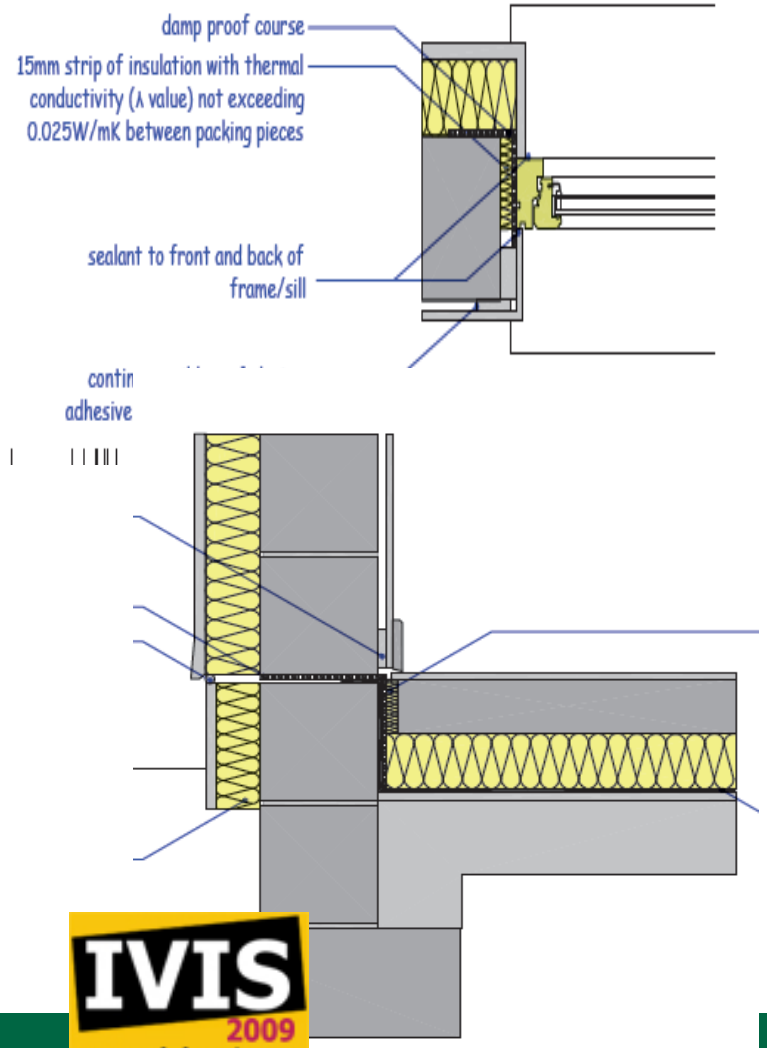

IR of air in 1st floor party wall of 2 story house.

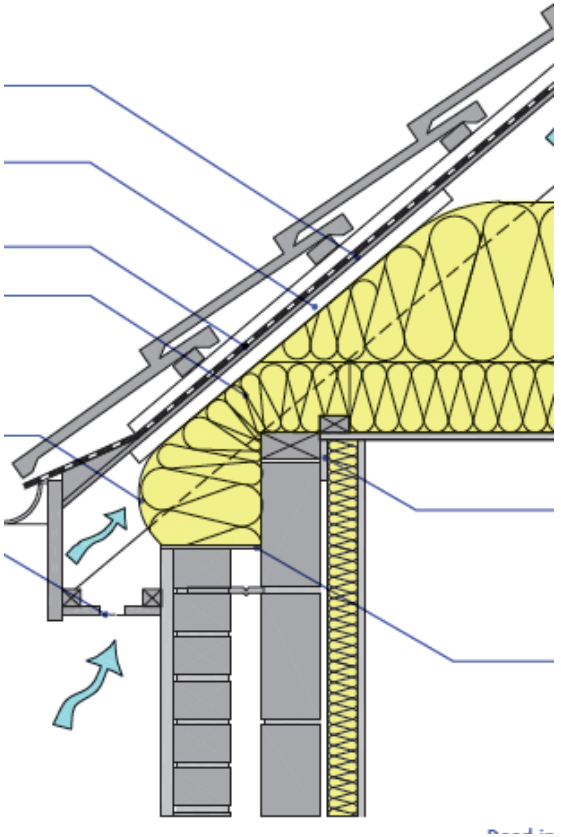
# Security of Supply

# Control of Interfaces



# Junction Detailing



# VIMs for housing