# From Research to Mainstream: An unbridgeable gap?

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# The issue still being grappled with, how do we improve this building stock…

# Whilst avoiding this….

# We have the knowledge and research base, but is this translating into mainstream retrofit / construction sector?

# Obstacles to mainstream adoption of appropriate measures

- Certification of methods and materials
- Training of contractors
- Training of specifiers / designers etc
- Standards and their application
- Government policy and targets
- Sustainability of retrofit / carbon cost

# Government Policy and funding, part of the problem or part of the solution?

- A limited range of materials receive funding, installed by a limited range of companies
- “The Government has a target to upgrade around one million homes through Eco and other Government domestic energy efficiency schemes.”
- Scottish Government Skills Matrix (which includes the Level 3 Award) potentially a good step in the right direction if adopted

# Warranties / testing / certification

- There does not appear to be consistency of approach regarding warranties between funding streams
- ECO currently has a requirement for a 25 year warranty for certain measures
- Non ECO work 10-12 year warranty typicly
- Is testing fit for purpose? BBA certificates / Grenfell
- This can all act as a barrier to the mainstreaming of appropriate measures

# Targets mostly based around EPC bands, what have we learned?

- A more detailed survey can give a better rating
- Accurate measurement can give a better rating
- Record all retrofit work that is done in sufficient detail to be recorded on EPC
- Unexpected factors such as an infrared heating panel can cost SAP points which can be the difference between a C and a D
- Do we need to pay more for a more accurate survey?

# Meeting Building Standards in Scotland – can be done with vapour open materials (for now…)

| Type of element | Area-weighted average U-value ($W/m^2K$) for all elements of the same type | | | HES Case Study Result Achieved |
|---|---|---|---|---|
| | (a) Maximum U-values for conversion of heated buildings | b) Maximum U-values for conversion of unheated buildings | (c) Individual element U-Value ($W/m^2K$) | |
| Wall (Solid) | 0.3 | 0.22 | 0.70 | 0.15 80mm cellulose (KoC)<br>0.19 80mm WFB (Kild)<br>0.22 100mm Hemp (SS)<br>0.29 100mm cellulose (SS)<br>0.3 50mm bonded bead (Laur)<br>0.32 50mm bonded bead (SS)<br>0.32 50mm Aerogel Board (SS) |

Interpretation of Standards critical - The standard for condensation for not mandate a vapour barrier, control of condensation can be met by using vapour open / humidity buffering materials

# If standards seek ever lower u-values does the condensation / decay risk increase?

# Insulated lime plaster… certification?, warranty? EPC?

Who is looking at solutions around renewables / services? Ground Source Heat Pump in A listed vernacular building

# Developing and implementing the principles of “Sustainable Retrofit”

- Technical compatibility with traditional fabric
- Upgrade of existing fabric (adding not removing)
- Durability and resilience of interventions
- Ventilation and Indoor air quality
- Measures able to withstand a changed climate
- Carbon impact of measures is understood
- Upgrade materials that sequester carbon
- The building is in good condition…..

# “sustainable” refurbishment? Circular Economy?

# Training of installers, the NOS are in place…

- New NOS for Insulation and Building Treatment operatives, now mainly at level 3
- New retrofit pathways for construction site managers and supervisors at level 6 and 4 respectively
- Will lead to new qualifications but will the retrofit industry adopt these, some evidence that they wont
- Level 3 Award in Energy Efficiency Measures for Older and Traditional Buildings being delivered

# The NOS are a good foundation but not enough on their own to bring about mainstreaming

- Training for operatives needs to move into a college / external training setting
- Training and education must be independent of material suppliers as with other sectors of the construction industry
- What about designers and professionals? Training, CPD, delivered by whom?

# What do we need to do?

- Work together (PAS 2038 shows what can be done)
- Support the development of training and education at all levels, beyond just influencing NOS
- Work to ensure warranties / funding / standards offer opportunities not barriers
- Investment is needed at all stages of the process to make traditional buildings more energy efficient using appropriate methods and materials
- Traditional buildings are sustainable but need a careful and considered approach to see them achieve another 100+ years of use

# Holyrood Park Lodge, Category B listed building in Holyrood Park, Edinburgh, built 1860's, EPC B

# The gap can be bridged, but needs a co-ordinated approach


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