Retrofitting technology to existing homes

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Summary

This presentation will:

- Present a pilot project that monitored the impact of technologies retrofitted to existing homes

- Focus on the issues that this project reveals around existing homes and their occupiers

CLEVER Homes Project Summary

Measures/technologies

- Two types of solar-powered ventilation systems, along with conventional insulation, were installed into 120 households in Ireland and Northern Ireland

Households

Focused on homes with damp or condensation problems and on re suffering fuel poverty and health i

Project goals and partners

Multiple goals

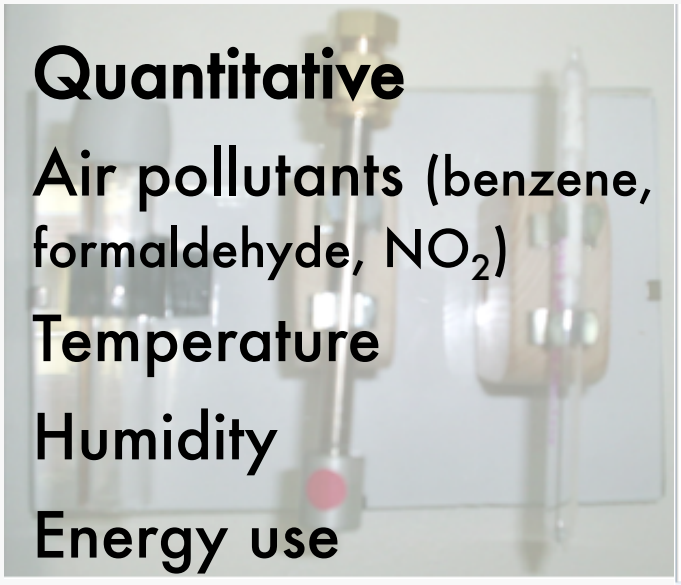
Social welfare, health and energy efficiency

Diverse partners

Energy, housing, social development, social services, trade and investment

Commitment to monitoring

- 22% of homes were monitored before, 1 month and 6 months after installation
- Quantitative and qualitative methods used



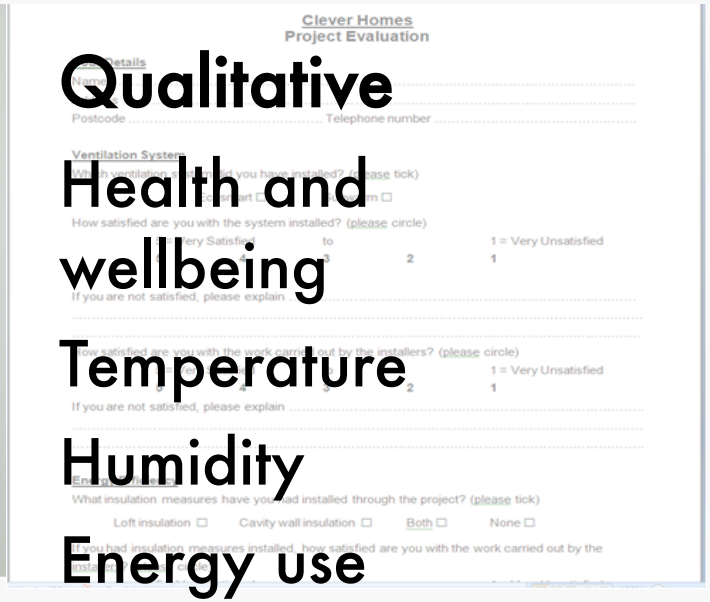
Quantitative

Air pollutants (benzene, formaldehyde, NO_2)

Temperature

Humidity

Energy use



Qualitative

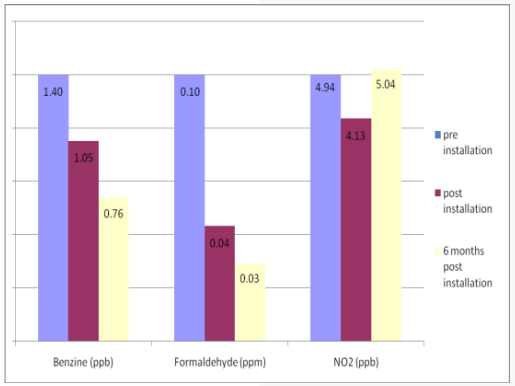
Health and wellbeing

Temperature

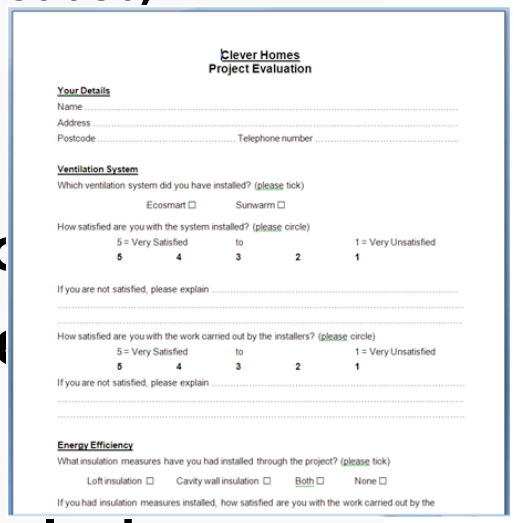
Humidity

Energy use

What was found



- Monitored improvements in **pollutant** levels (not NO_2)
- Monitored reduction in **humidity** (though not reduced enough to prevent growth of dust mites and, in some cases, mould)



Clever Homes
Project Evaluation

Your Details
Name .....
Address .....
Postcode ..... Telephone number .....

Ventilation System
Which ventilation system did you have installed? (please tick)
Ecosmart ☐ Sunwarm ☐
How satisfied are you with the system installed? (please circle)
5 = Very Satisfied to 1 = Very Unsatisfied
5 4 3 2 1
If you are not satisfied, please explain .....
How satisfied are you with the work carried out by the installers? (please circle)
5 = Very Satisfied to 1 = Very Unsatisfied
5 4 3 2 1
If you are not satisfied, please explain .....

Energy Efficiency
What insulation measures have you had installed through the project? (please tick)
Loft insulation ☐ Cavity wall insulation ☐ Both ☐ None ☐
If you had insulation measures installed, how satisfied are you with the work carried out by the

- Self identified benefits in indo… **temperature**, **humidity** and he…
- Actual **energy** reductions we… evident, though surveys revealed reduced concern over energy bills and an increase in heating use in fuel poor…

Lessons: monitoring and demonstration

1. Highlights the importance of studies that assess technologies in occupied and hard to treat homes. Dearth of comparable studies.
   - An over-emphasis on the technology rather than its **purpose** is revealed by the preference for optimal efficiency modeling or testing in sterile environments
   - An evidence base is essential to promote confidence and stimulate housing refurbishment

2. Ongoing engagement can bridge the technology–user information gap that threatens technology effectiveness

Lessons: cost effectiveness and complexity

3. Evaluations of projects focused on the existing stock and existing communities need to encompass **non-monetary and qualitative** impacts

- Cost effectiveness calculations need reconsideration for projects addressing multiple needs
- The single, energy saving, issue agenda undervalues projects that deliver social or non-energy benefits to existing communities

Lessons: diverse and holistic partnerships

4. Multiple goals refocus on the technology as a tool rather than the end in itself

   - Holistic approach to multiple sustainability priorities brought by diverse partners
   - Evidence on the non-energy benefits to residents provides useful hooks and drivers for community engagement

Contact

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Questions

- How do you incorporate non-energy benefits into the cost effectiveness calculation? Any examples?
- The project revealed suboptimal technology use: how can we tie the behaviour and education to the technology?
- What brings different interests together? Examples of diverse partnerships.