Building Performance Evaluation

- £8m funding between 2010 & 2014
- Individual buildings & developments
- Identify factors that encourage good performance
- Domestic & non-domestic
- Expose activities that contribute to poor performance
- Case study investigations
- Explore lessons learnt

https://connect.innovateuk.org/web/building-performance-evaluation
Domestic: 53 projects (350 dwellings)
• 23 “Early occupation” projects
  - 6 months assessment post construction & initial occupation
• 30 “In-use” projects
  - 2 years detailed performance monitoring and occupant assessment

Non-domestic: 48 projects (55 buildings)
• 8 “Early occupation” projects
  - 6 months assessment of handover
• 40 “In-use” projects
  - 2 years detailed performance monitoring and occupant assessment
Energy consumption is often much higher than design calculations suggest

- A lot of data has been gathered
- Design teams have been reformed to investigate the building
- Occupants have been involved
- Procurement methods have been reviewed
- We can now look beyond the numbers

Where is the performance gap occurring? And who is responsible?

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2013 RIBA Plan of Work

0 & 1
Strategy and brief

Capture of design intent
Arrangements for managing delivery of design intent

2 - 4
Concept to technical design

Review of design data & metering strategy
Review of commissioning plans & procedures

5 & 6
Construction & handover

Review of handover process & data
Inspection of build quality (photos & tests)

7
In use

Review of arrangements for aftercare, operation & maintenance
Inspection of issues arising

In use projects

Assessment of annual energy use
Structured reviews with occupants & management

Early occupation projects
Lack of client engagement

• There are activities that occur throughout the build that can adversely effect the final building performance
  – Procurement tends to focus on cost not value
  – Value engineering
    ▪ tends to see certain key items removed without fully recognising the consequences
  – Certification planned at design is not achieved in use
  – Initial strategies are adapted or abandoned
    ▪ sub-metering strategies – not fully understood, implemented or reconciled
  – Commissioning and reconciliation of systems rarely carried out

Clients not getting the benefit of the measures they are paying for

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Challenges to occupants and building users

- Technologies are still not fully understood, particularly interactions between technologies
- BMS systems impenetrable and confusing
- Complex controls - now with added bespoke protocols
- Challenges with community systems, particularly biomass

Lack of post occupancy consideration means projects often do not achieve their operational outcomes. It is easy to disconnect the building from the end users
Low energy aspirations can influence system complexity

• There are many conflicting factors at play that are outside of the “teams” control
  - Carbon/energy targets
  - Policy related to planning or availability of funding
• Attention needs to be given to implementation of new technologies

POE work to review, fine tune and feedback on findings is vitally important. Right first time is not realistic

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Thank you

To join the BPE community and be kept up to date go to: connect.innovateuk.org and search for Building Performance Evaluation

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