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- POE Drivers
- Innovate UK BPE Programme
- Top 10 POE discoveries

*The top 10 POE discoveries are the opinion on the presenter and not official findings from the Innovate UK BPE Programme*
POE DRIVERS

- CREATE BETTER BUILDINGS
- Evolution of your product
- Because you have to (e.g. GSL)
- Performance contracts
- Added value to clients
- BREEAM credits
- LEED credits
Innovate UK BPE Programme

- 56 domestic projects
- 48 non-domestic projects
- Typical funding £40-60k
- Aims:
  - Reduce the performance gap
  - Understand what affects building performance
  - Integrate BPE into the construction industry
  - Generate BPE case studies

@XCO2e @KordelTom
Design Predictions – Performance Gap?

Source: Innovate UK

Source: Carbon Buzz
No.1 – Fabric performance is all about the details
No.2 – There are lots of problems with domestic MVHR
No.3 - People live life in different ways!

Annual heat and electricity use for 5 1 bedroom flats in the same development
No.4 – It’s getting hot in new homes

Monthly mean internal temperature in 5 one bedroom flats

% time above CIBSE overheating threshold within a year

Monthly Temperature Chart

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bedroom</td>
<td>4.3</td>
<td>11.4</td>
<td>12.1</td>
<td>16.3</td>
<td>28.7</td>
</tr>
<tr>
<td>Living Room</td>
<td>0.6</td>
<td>0.4</td>
<td>0.1</td>
<td>0.0</td>
<td>8.4</td>
</tr>
</tbody>
</table>
No.5 – We’re not that good at communal heating yet

Predicted distribution losses and actual distribution losses for a mixed-use communal heating system

DESIGN

95%  
5%

ACTUAL

41%  
59%

predicated losses in SAP  
measured losses

Predicted distribution losses and actual distribution losses for a mixed-use communal heating system
No.6 – We need to design for maintainability & robustness
No.7 – Controls are often too complex

How to operate Velux Windows in Main Hall

1) Push centre button on remote.
2) Press locate
3) Choose from the options given using the arrow keys on top panel – Windows or Blinds (procedure is the same for both).
4) Press enter
5) Choose from the options given using the arrow keys on top panel.
6) Press enter
7) Press up arrow on central pad to open. You can allow these to run to open fully or press the central button to stop them mid cycle.
8) Press down arrow on central pad to close
No.8 – BMS’s are not fit and forget
No.9 – Clients need help during defects periods
No.10 – Sub metering is often useless
For more findings …

Innovate UK
Building Performance Evaluation Programme:
Findings from domestic projects
Making reality match design
January 2016

Innovate UK
Building Performance Evaluation Programme:
Findings from non-domestic projects
Getting the best from buildings
January 2016

https://buildingdataexchange.org.uk/
THANK YOU, QUESTIONS?

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Post Occupancy Evaluation:
Top 10 POE Methodologies

Lisa Ann Pasquale CEng MCIBSE

YEPG Carbon Bites - 4th May 2016
Annual Energy Assessments and Benchmarking

- Photovoltaics
- Other electric
- Computer room
- Catering electricity
- Office equipment
- Lighting
- Pumps, fans and controls
- Refrigeration
- Domestic hot water
- Heating

Graph showing energy use and carbon emissions.
Data Cross Referencing
Occupant Surveys

% of departments feeling...

- Commitment / Ownership
- Acceptance / Engagement
- Understanding / Curiosity
- Resignation
- Anger / Resistance
- Denial / Indifference
- Informed of Change

- Start work as Relocation Lead
- Before INTRO
- After INTRO
- First day
- 3 months post-move

- comfort waiting area
- acoustic privacy
- calmness atmosphere
- visual privacy
- privacy at reception
- find treatment room with ease
- comfortable treatment room
- furniture in treatment room
- space in treatment room
Thermographic Imaging

Excess Heat from Inefficient Refrigeration Equipment

Heat from Uninsulated Domestic Hot Water Lines

Invisible Defects causing severe infiltration
Photographic Walk-Throughs
Hindsight Review Meetings

The RIBA Plan of Work 2013 organises the process of briefing, designing, constructing, maintaining, operating and using building projects. As required.

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Average Internal Temperatures Logging

Holiday Week December 26th, 2010 - January 1st 2011

@6CylinderLTD
Ventilation Rates and CO₂ Logging

Uses logarithmic relationship between CO₂ concentration, CO₂ generation rate (based on occupancy & met rate), and ambient conditions to determine ventilation rate

( method by D.Mumovic)

In-Use Ventilation Rate Test for the Western KS1 Classroom
Specific Performance Tests
We're like crash-test engineers, but for low-energy buildings...

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