FORENSIC ENGINEERING
CATHERINE SIMPSON CENG FCIIBSE
FORENSIC ENGINEERING SKILLS

- Question
- Listen
- Observe
- Measure
- Deduce
- Analyse
- Predict
- Verify
- Test
- Communicate
- Confidence
FORENSIC ENGINEERING DANGEROUS EVIDENCE

Clues:
- Complaints
- Anecdotes
- Consultant Reports
- BMS data
- Ad hoc solutions
- Staff theories
- Staff observations
Forensic Engineering Valuable evidence

- Evidence:
  - Your measurements
  - Your observations
  - Your verification of data
  - Your analysis of failures
  - Your analysis of success
  - Your tests
  - Your predictions
FORENSIC ENGINEERING
THE CHALLENGE

How can we:

- Reduce complaints?
- Reduce draughts?
- Make it warmer in winter?
- Reduce overheating?
- Reduce heating costs?
- Regain confidence?
- Convince third parties?
- Keep an open entrance policy?
FORENSIC ENGINEERING
GETTING THE PICTURE

Developing your theory:
- Dynamic thermal model
- Context for evidence
- Identify prevailing conditions
- Identify drivers
- Identify benign factors
- Develop tests for your theory
- Look for unintended consequences
Testing a theory
- Cost £50K
- Saved circa £500K capital
- Saved £££ energy
- Reduced draughts
- Improved comfort
- Happier tenants
- Restored confidence
FORENSIC ENGINEERING
INVESTIGATIVE TOOLS

- Testing a theory
  - Cost £50K
  - Saved circa £500K capital
  - Saved £60K/month heating
  - Reduced draughts
  - Reduced tenant complaints
  - Restored confidence
FORENSIC ENGINEERING

- Like a jigsaw
- Given clues
- Find evidence
- Simulation gives context
- Test theories
- Prove a solution

GREAT FUN!

Thank you for listening