The Performance Gap

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What exactly *is* the ‘performance gap’?...

Design v As-Built performance:

- Of interest to successive Ministers responsible for Building Regulations
- Subject to recommendations by the **Zero Carbon Hub** – *'90% of new homes to meet 'as built' performance standards from 2020'*
- **Part L 2013 recommendation:** "an overarching quality assurance process…" to include:
  - Sample testing
  - Feedback loops to drive improvements

…or else accept 'confidence factor' penalty

New scheme to tackle energy efficiency 'performance gap'

Building 6 March 2013

DON FOSTER MP

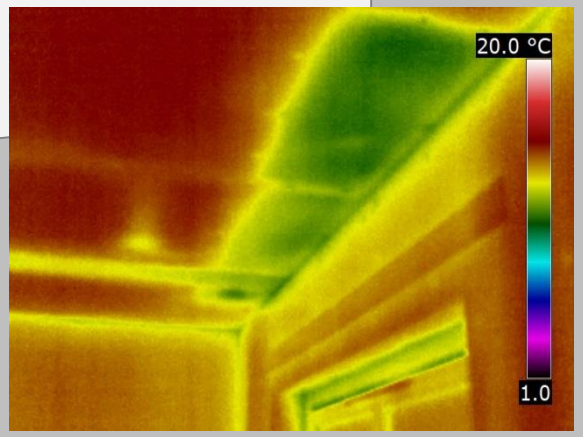
"The government has announced it will fund a construction industry wide scheme aimed at closing the gap between the energy standards new homes are designed to and the way they perform when built."

"The programme will be overseen by the Zero Carbon Hub and will run from 2013 to 2020."

"The first set of recommendations for how to improve the performance of homes will be made next year."

New scheme to tackle energy efficiency 'performance gap'

Building 6 March 2013



"...closing the gap between the energy standards ***new homes*** *are* ***designed to*** *and the way they* ***perform*** *when built."*

…isn't that what Building Regulations are for?

Building Regulations History:

- First evolved from public health scandals and precedent disasters, dating back to The Great Fire
- Established procedures for Checking designs and carrying out on-site inspections… …to secure minimum standards in buildings.
- ‘Deemed to satisfy’ and limit state engineering approaches are recognised, at the choice of the builder/designer…

Part A: Structure

What's needed here?

Is there a 'Performance Gap?'

Is there a 'Confidence Factor'?

Who makes the choice?

What are compliance rates?

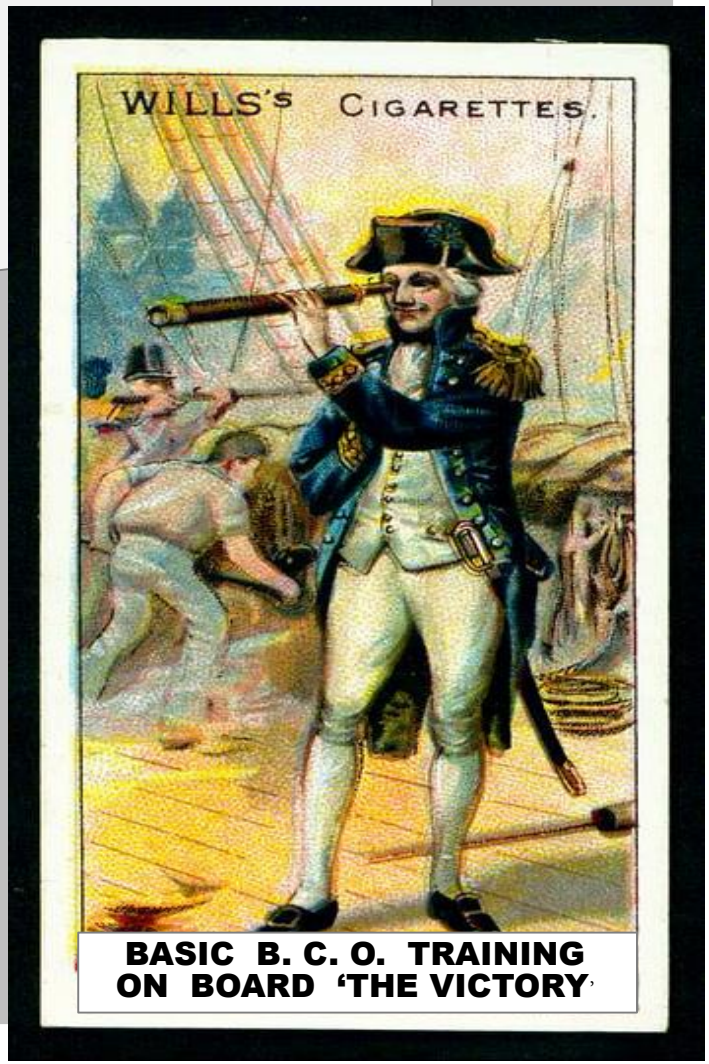
Does ANYONE mind the gap?

Part L enforcement 'shambolic' claims industry body

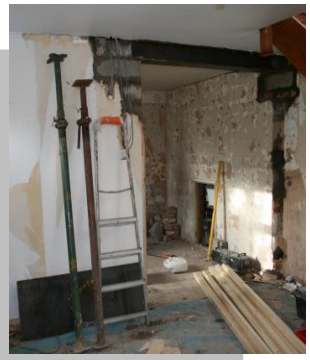
Building 13 March 2008

"Contractors are not hearing or seeing anything about enforcement of Part L.

“Building Control Officers have responsibility for this, but many are turning a blind eye.”

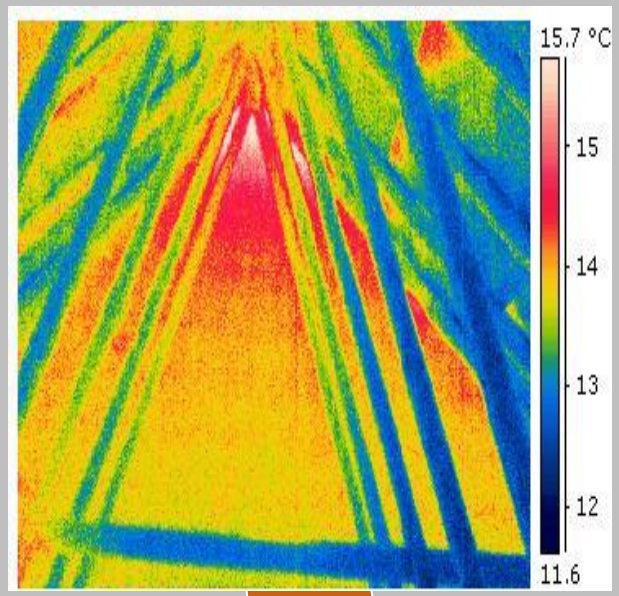


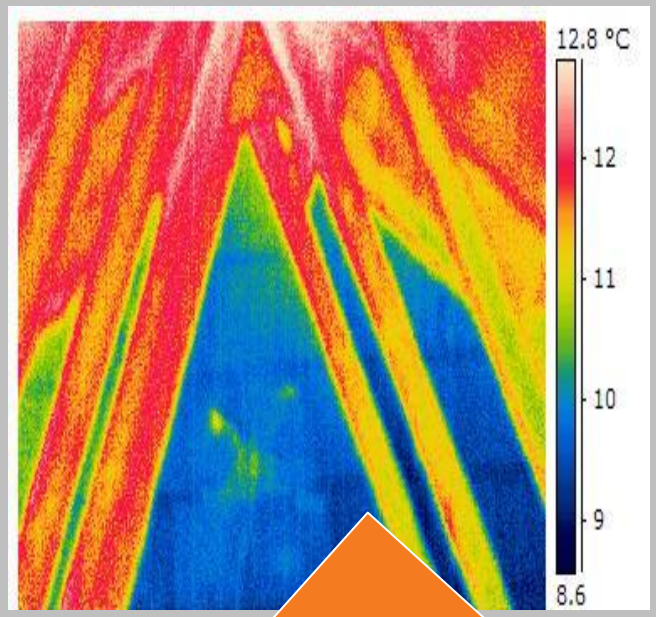


…What about Part E and Part L?

What about Part E and Part L?...





(slides courtesy of Leeds Metropolitan University, Wingfield et al, 2008)

The Blame Game

does it comply with…	**PART E**	**PART L**
DESIGN	✔	✔
BUILD	✔	✔

A Typical Post-Part L 2010 Separating Wall

does it comply with…	PART E	'NEW' PART L
DESIGN	✔	✔
BUILD	✔	✔

Separating wall cavity insulation (optional)

The cavity may be insulated with mineral wool with a maximum density of 40 kg/m^3.

(EXAMPLE: New text inserted into existing RDs)

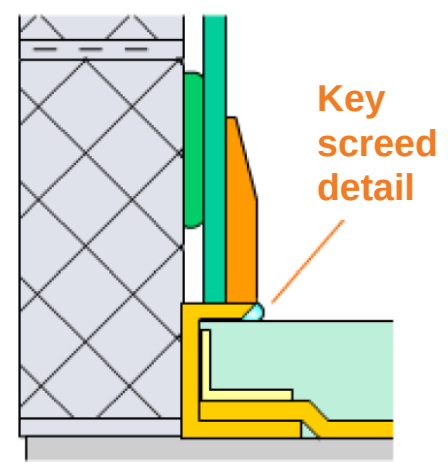
Sampling from the **whole population** of RD-registered homes

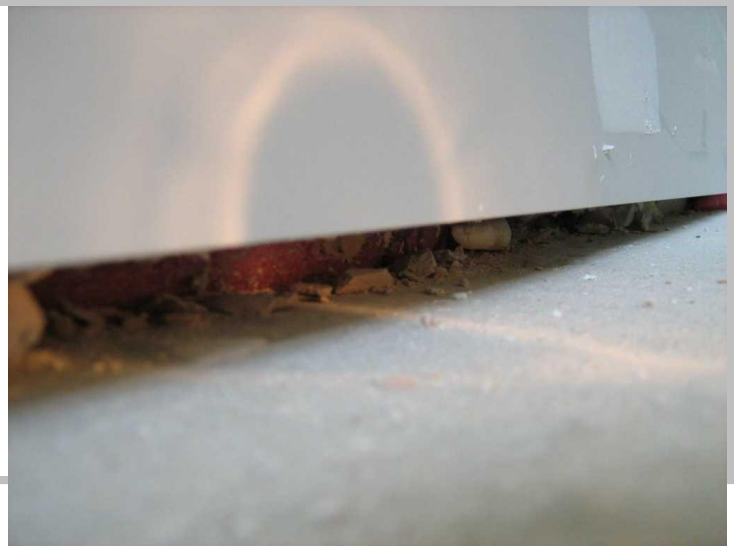
Investigating underperformance and **reporting failures** (to the builder, and building control)

The **feedback/ improvement** cycle: ‘robusting-up’ or **withdrawing** any patterns that fail to comply

Inspectors' **main purpose** is to measure performance and establish compliance…

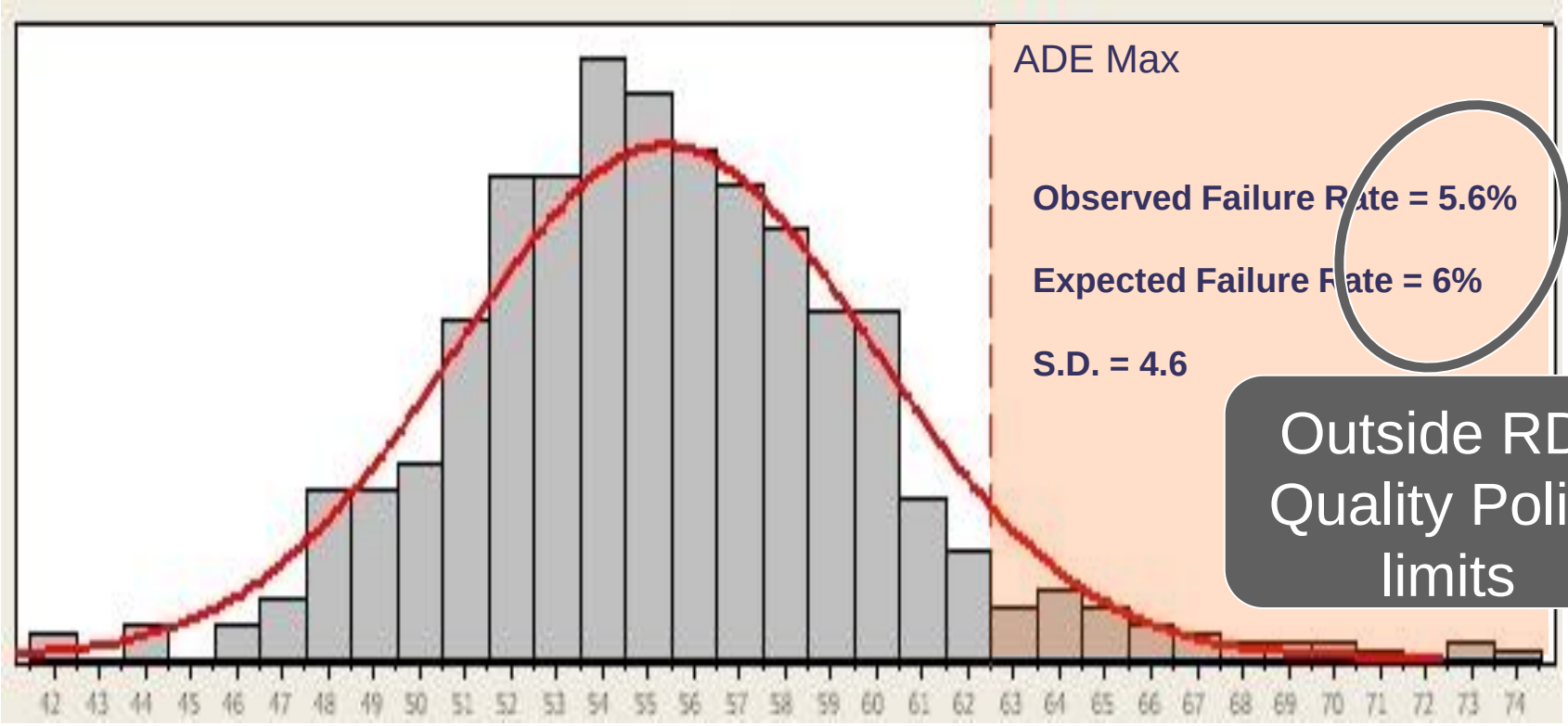
…but collected **data is essential** for anyone who 'minds the gap'…





…driving **innovation** and **efficiencies** in production and/or design

A ‘typical’ floor result - impact sound (pre-Sept 2008):

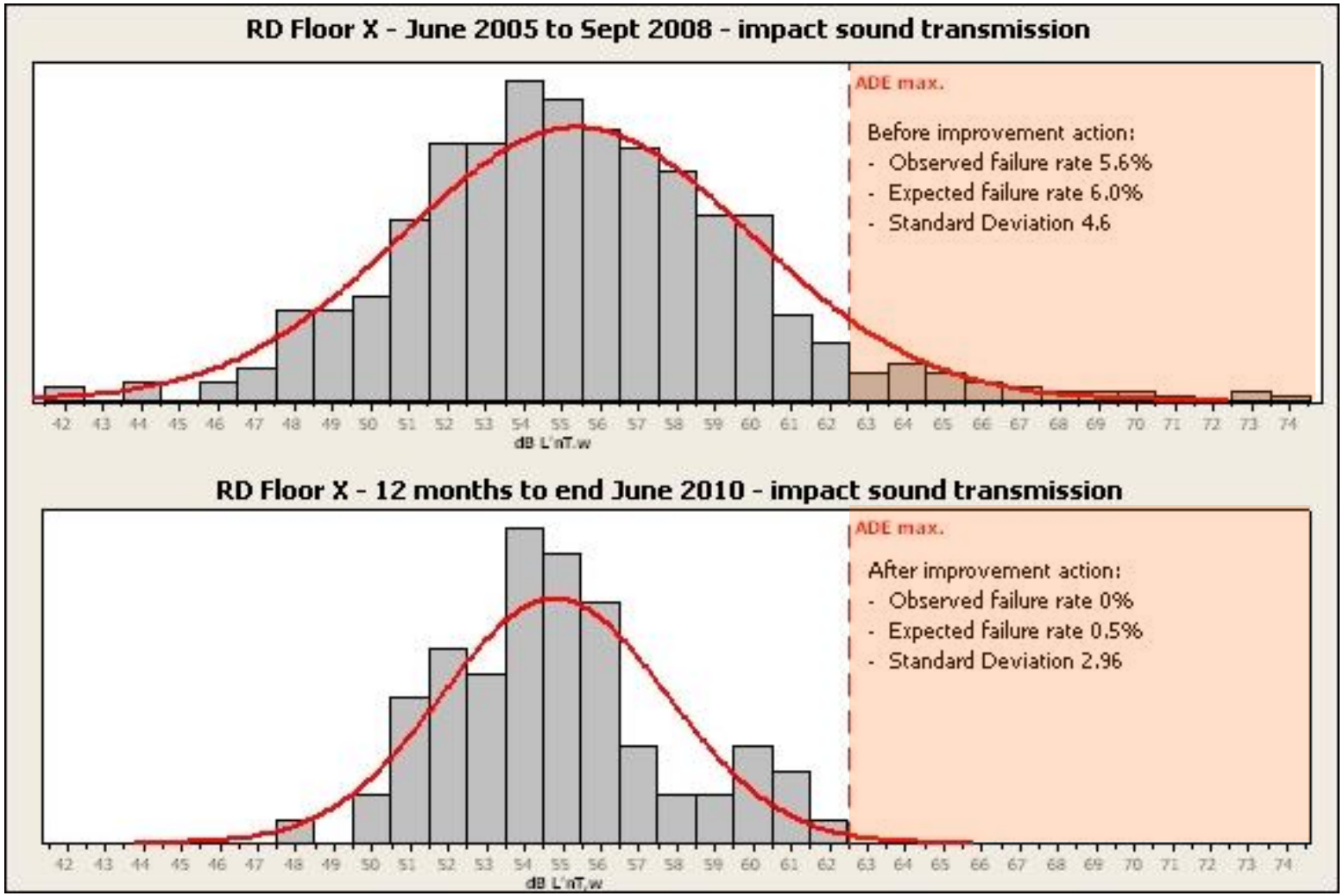


Outside RDL Quality Policy limits

On-Site Training:
…lapped and taped joints of main resilient layer; and screed correctly isolated at perimeter…

…good isolation of screed by resilient flanking strip…

The kind of difference ‘minding the gap’ can make…?



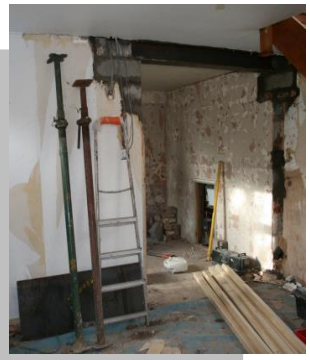
Feedback and Improvement - *an example*

Defra report NANR 314: An investigation into the effect of historic noise policy interventions

Building Regs., Part E:

- *“The net effect of the policy over the period 2003 – 2010, assessed in terms of preventing 'failures', was estimated to have been about 198,000 attached houses and 111,000 purpose-built flats".*




SO – WHEN SHOULD WE
MIND THE GAP
?

When the functional requirements can best be met by:

A simple pattern book, load/span tables, deemed-to-satisfy solutions, normal approval and inspection routines, etc.

….the ‘RSJ over opening’ approach

When the functional requirements can best be met by:

Limit state design, known and accurate calculation and design procedures, specialist approval and inspection routines, etc.

The kind of difference ‘minding the gap’ can make…?