

Making Measurement Pay: The Ultimate Money Saving Expert?

BTS Webinar Series #13

Dr Richard Jack, BTS Technical Director

Today we'll cover

- Key risks associated with unknown performance
- Value generated by quantitative risk assessment
- Case studies demonstrating real RoI for clients
- Return on investment for testers



Unexpected performance is the norm

EPC heat loss wrong for
more than

half

of homes

[EST & BTS](#)

Only

16%

new homes meet
ventilation requirements

[MHCLG & AECOM](#)

Walls assumed to have
same heat loss vary by

100%

[University of Salford, BTS, &
Elmhurst](#)

Key Risks of Unknown Performance

Poor Specification & Wasted Cap Ex

Heat pump oversizing costs >£2k on average

OpEx & Handover Disputes

Delays when issues are detected, ongoing Op Ex when they're not!

Resident Protection & Awaab's Law

Rapid response to unknown issues drives short termism

1. Poor Specification & Wasted Cap Ex

- **Over-specifying:** Based on assumptions & safety margins burns budget
- **Under-specifying:** Leaves homes cold and triggers complaints
- **Unwise Sales:** Writing off upgradable stock based on flawed EPCs





Case Study

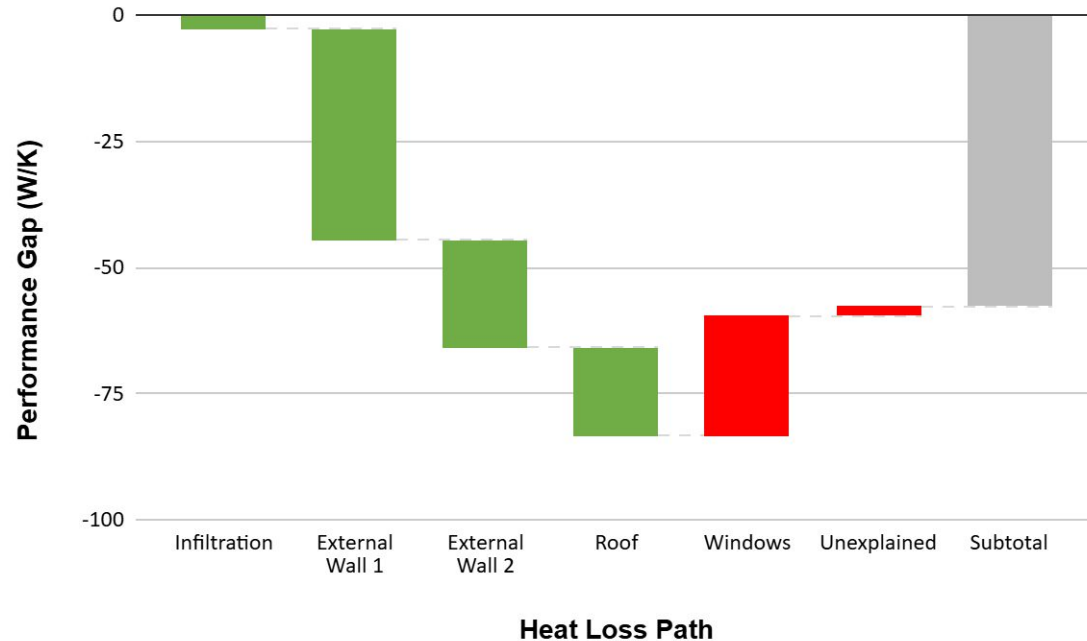
Retrofit planning for a vacant social housing unit

Priorities:

- Good fabric performance
- Heat pump
- Address mould issue which caused complaints
- Improve EPC rating



Heat loss & ventilation assessment



- SmartHTC: Heat loss less than EPC
- Heat3D: Walls much better than EPC
- Heat flux plates: Glazing worse than EPC
- Ventiflow: Mechanical ventilation terrible





Impact

- No EWI
 - Replace glazing
 - Mechanical ventilation upgrade
 - Much smaller heat pump
-
- Capex saving = £5.5k (**7x+ ROI**)
 - Mould risk reduced (Opex saving)
 - Missed EPC opportunity 😞



2. Handover & Maintenance

- **Latent Defects:** Taking on long-term mould and heating liabilities post-handover
- **Disputed Handovers:** Costly delays when performance failures are caught late
- **Unplanned Op Ex:** Firefighting unexpected asset repairs blindly





Case Study

- Build to Rent Scheme
- Passed typical sign-off procedure
- Mass tenant complaints of high bills and cold rooms
- Unknown cause
- Considering removing external facade to fix insulation issue





Building Diagnostics

- SmartHTC: Large performance gap in total heat loss
- Pulse: Airtightness to spec
- Heat3D: External elements to spec



- Heat3D: large additional, previously unknown, party floor/ceiling heat loss path





Impact

- Defect identification led to relatively minor remediation work
- Ended blame loop & wasted surveys
- Avoided expensive fix to insulation that was actually working!
- At least £20k saving (**10x ROI**)



3. Resident Protection & Awaab's Law

- **Strict Liability:** Regulatory pressure means "tenant lifestyle" no longer an acceptable defence
- **Repetitive Fixes:** Treating symptoms without diagnosing root cause drains Op Ex
- **Disrepair Claims:** Legal costs outpace testing costs by **20 to 1**



Case Study

- 1960s flats, social housing
- Chronic damp and mould complaints
- Root cause unknown
- Mould washes & ad hoc extra vents
- No impact on complaints
- Ongoing significant financial burden



Ventilation Sufficiency Assessment

- Pulse tests in most units
- Mean $\text{ACH}@4\text{Pa} = 0.4\text{m}^3/\text{h.m}^2$ (or $2@50\text{Pa}$)
- Lowest $0.15\text{m}^3/\text{h.m}^2@4\text{Pa}$
- Very airtight dwellings!
- Intermittent mechanical ventilation inappropriate
- Root cause of mould risk identified



Impact

- Install continuous mechanical ventilation
- Mould Risk Indicator score moved from **Very High** to **Low**
- £1,000s saved in reduced complaints & ineffective interventions
- **3x ROI/property/yr**
- Protects residents & reputation



WHAT DOES THIS MEAN FOR TESTERS?



Where Testers Win

**Put your clients
Capex to work**

*Identify the right
measures for the right
buildings*

**Double your yield
per site visit**

*By delivering high value
additional services*

**Become essential
risk insurance**

*Deliver objective
evidence of real
performance*

Case Study: Pulse Testing

In 2025:

- 55k Pulse tests
- Across 177 organisations
- 314 tests each
- @£150/test = £47,000
- **5.7x ROI in year 1**



Turning Barriers into Commercial Advantage

1. **Don't sell the test, sell the insight** - concentrate on the “so whats?”
2. **A clear differentiator** - proactive landlords, contractors, consultants, and testers set themselves apart
3. **Expose flawed assumptions** - new types of evidence create new ways to do business



Making Measurement Pay

Landlords



Optimise Cap Ex
Protect residents & reputation

Contractor



Protect retentions & margin
Win tenders on quality

Consultants



Validate designs
Protection from build defects

Testers



Add high value services
Improve margin on site work

Making Measurement Mainstream



- **The Technology Exists:** Rapid, non-intrusive testing with BTS
- **Don't Wait for Mandates:** Use BPE as your commercial advantage

Talk to BTS today about how to use measurement on your projects!



Diary Dates

Training

**Introduction
to Building
Performance
Measurement**



**Level 1
Airtightness
Testing**



**U-value
Measurement
Training**



**SmartHTC
User Training**

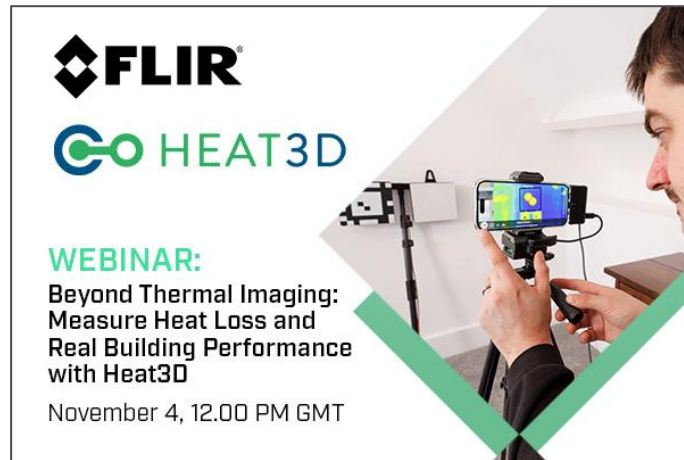


Next Webinars - save the dates!

Wednesday 4th November

Exclusive webinar in partnership with FLIR!

Register [HERE](#) (or click the image)



Friday 4th December

More details and speaker information coming soon!



Thank you!

Any questions..?

richard.jack@buildtestsolutions.com
www.buildtestsolutions.com

