

Friday 7 September 2018

Housing Energy Standards, and Opening Up the Innovation Space

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‘High profile issues on energy agenda, in the context of asset management
- Cost of energy, price rises, fuel poverty, air quality’
→ It’s all about the box!

THE ORGANISATIONAL RESILIENCE OF THE UK CONSTRUCTION INDUSTRY

MARCH 2018



project five

A REPORT WRITTEN BY
PROJECT FIVE CONSULTING

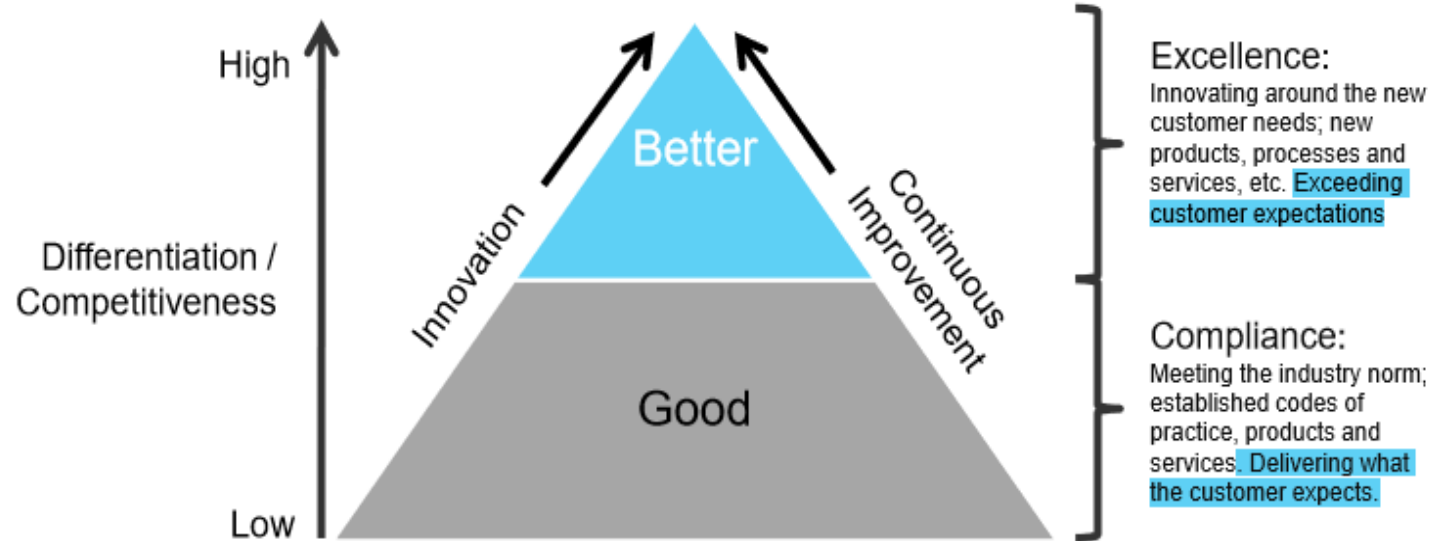
CONSTRUCTING EXCELLENCE

A REPORT PUBLISHED BY
EDUCATION FOR EXCELLENCE

Are we built on a house of cards?

2018

CULTURE



It is our hypothesis that the significant majority of the industry are 'good' and by default the competitive nature of the industry is fundamentally based on price.



2016

- Low levels of profitability
- Fragmented supply chains
- Skills weaknesses

- Low digital maturity
- Low productivity
- Adversarial relationships



Economist, 19.8.2017, p10

UK: ~ £15bn/year



So what?

This *is* the construction sector
→ this *is* your supply chain, unless you are an *active* client
And I assume that you are ambitious and want to deliver better outcomes.

Key emerging themes

- Procuring for Value
- Building Information Modelling
- Deep retrofit;
Risk, Retrofit Principles and
Cost of Transformation
- Newbuild;
2050-ready, OSM
- Planning policy



Hatfield Heath -
Passivhaus
Hastoe Homes, 2016

**Capital
Expenditure
(based on
Building
Regs at
lowest cost)**

Operational Expenditure

(remember the outcomes you will draw through if you are reliant on business as usual)

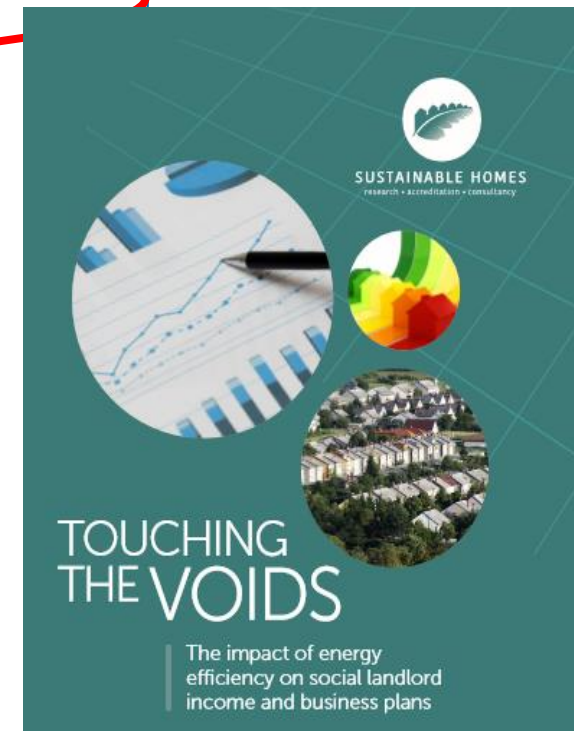
Year 1

Year 30

BRLC Operational Cost Centres

- Performance gap; greater energy use for tenant
- Risk;
 - Overheating, poor indoor air quality
 - Damp, mould, condensation (HHSRS1)
- Higher operational costs and housing mgt costs; maintenance, turnover (voids and reinstatement), arrears, complaints
- Future capital cost (design & component quality, climate change)
- Opportunity costs;
 - Policy alignment (financial inclusion, digital inclusion, carbon emissions, sustainable tenancies, sustainable communities)
 - Customer service excellence
 - Future energy systems
 - Staff engagement and satisfaction
 - Reputational damage

SAP 65(D) → 75(C)
= £7,300/ppty
over 30 yrs



**Capital
Expenditure
(based on
Building
Regs at
lowest cost)**

Operational Expenditure

Year 1

Year 30

**Realistic
Capex**

Opex – lower, but significance is that it is much *more manageable and predictable* due to much higher level of derisking by client

Total Expenditure (Totex) *‘Procuring for Value’*

Procuring for Value



Construction
Leadership
Council

Leading Transformation Across The Construction Industry

Long-term, holistic, methodology to capture financial benefits

- Captures the way forward
- Outcome focussed
 - Pulls through value, quality, performance
 - Creates business case for investment; smart construction, innovation
 - Enabler of better client culture

Building Information Modelling

- Deliverable part of contract
- What info, when, what format
- Operational cost effectiveness

'I spend half a day a week looking through handover sheets for information'
At Y6 – c.£290/month, = **£3,500** per **year** per **surveyor**

EMPLOYERS
INFORMATION
↓ REQUIREMENTS (EIR)



Your Homes
Newcastle

NEW BUILD PROJECTS

Capital Expenditure (based on BRLC)

Operational Expenditure

Year 1

Year 3

Year 30

Realistic Capex

Opex

BIM: Government Soft Landings

'Procuring for Value'

What happens in the future...? Hackitt Review

and to ensure their maintenance for both new and existing buildings. The aim should be to capture, hold and add to information that will, over time, form as complete a dossier of building information as possible for all HRRBs.

Part 1 – The digital record across the building life cycle

8.12 The review recommends that for new builds, a Building Information Modelling (BIM) approach should be phased in. BIM takes the digital techniques pioneered in other industries such as aerospace and automotive and applies them to construction. It is a process of designing, constructing or operating a building or infrastructure asset using electronic, object-orientated information.

8.13 It also forms part of the wider move towards improved transparency and integrity of information and underpins a greater focus on effective change control. Dutyholders using the digital record effectively can more easily keep a log of the as-built

8.17 The Government refers to savings from construction refurbishment and the savings from operational occupancy.

8.18 The report states that through maintenance

- decision
- quality of standards
- efficiency

“For
need

BUILDING CONTROL

Before Grenfell, many in the building industry have claimed, the privatisation of building control had led to a ‘race to the bottom’.

Dame Judith acknowledges this problem. She proposes that private ‘approved inspectors’ can still be used, but if they provide regulatory oversight they must be independent of builders, as opposed to the current system, which many have said amounts to builders choosing their own regulators.

The report recommends the rebranding of the Local Authority Building Control as ‘Local Authority Building Standards’.

This new body would have additional powers to issue ‘stop’ notices to builders, require changes to building work and work with an increased time limit for bringing prosecutions.

Builders would also be required to prove safety to building control more regularly than is currently the case: before getting planning permission, again before starting work, again before the building is occupied and regularly after occupation.

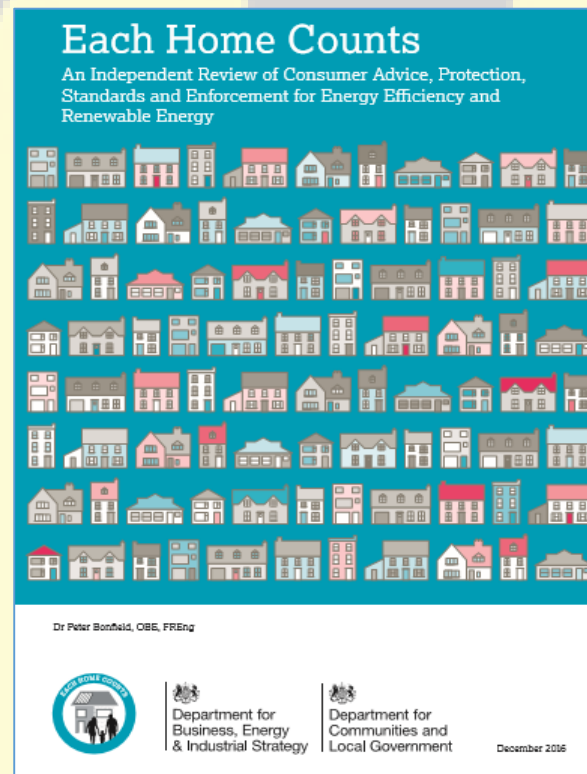
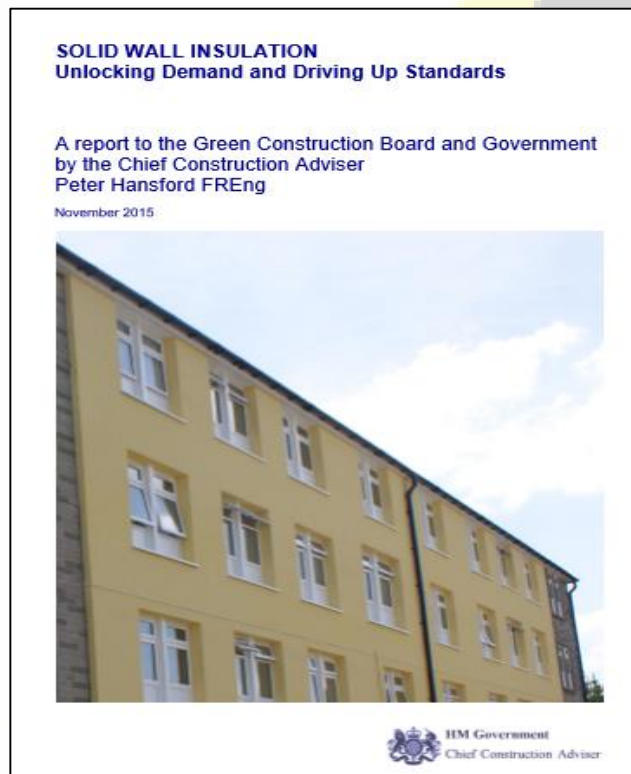
Govt Soft Landings

<https://www.linkedin.com/feed/update/urn:li:activity:6402859956399337472/>

Inside Housing, 25 May 2018, p11

The Hackitt Review: Key Recommendations

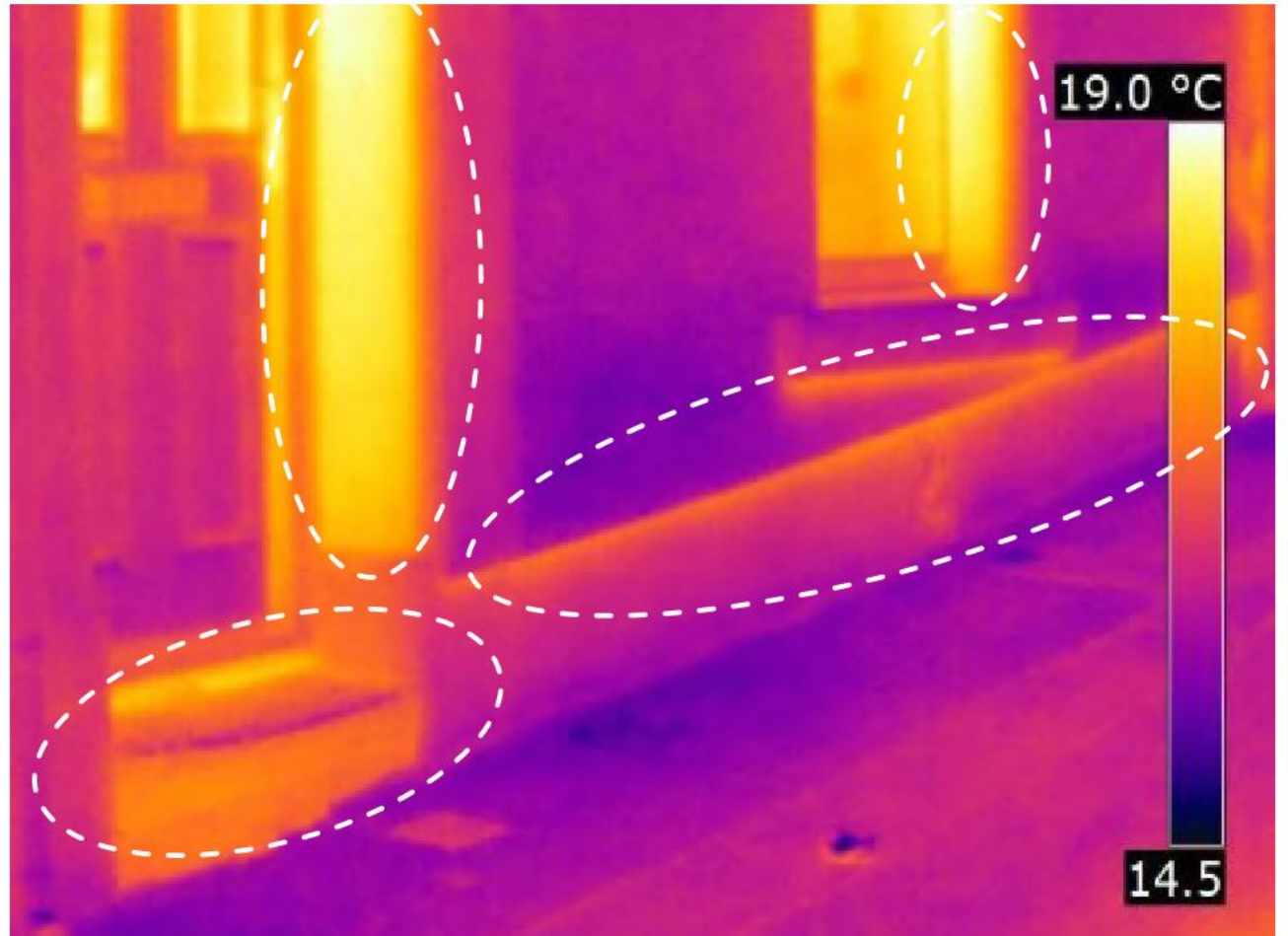
Deep retrofit ... is inseparable from risk



Deep retrofit “...is not just a collection of measures, it is a holistic plan, including strategies for insulation and airtightness of the fabric, and for ventilation”
(Kate de Selincourt)

If we get retrofit wrong
– its *our* problem

*Thermal bridging, post-retrofit
(Pre-1919 dwelling)*



... and current structures (technical competence, understanding of retrofit risk, lowest capital cost tendering, dependence on regulation, grant rules determining scope and design of project, specification not outcome focus, lack of post-occupancy monitoring and evaluation...) mean this is more likely than not

Alignment in context of risk

- Regulatory risk;
 - This is likely to come our way
 - We do not want to be learning how to do this at the same time as everyone else, dependent on an unsophisticated supply chain used to lowest capital cost tendering, within an externally imposed time constraint
- Retrofit risk; → **‘Retrofit principles’**
 1. Understand the property
 2. Holistic plan
 3. Identify and mitigate risk



BAU cost is approx. £32,000 over 30 years, plus £7,300 in management costs
So £40,000 is your comparative baseline; anything above this is the

Cost of Transformation

→ What is most value-orientated, risk-managed way to invest?

Newbuild

- 2050-ready → Innovation space – but implications;
- Technical competence
- Supply chain
- Client leadership

Note: OSM is an *operational* not strategic decision!

- Post-Occupancy Monitoring and Evaluation
- How on earth do you understand value without POME?

- Value, performance, risk, quality and outcome
- Green Building Team; skills & employability crossover

Planning Policy

“Companies who consider themselves to be progressive developers, with strong corporate commitments to sustainability, are voluntarily delivering higher standards anyway, but this is not always recognised and rewarded by local authorities...”



The failure by local authorities to recognise and distinguish between companies that are offering high, and low, quality housing, and their current inability to locally incentivise high quality development, undermines the business case for sustainability”

Clienting: if we don't adopt our own policies when we are a commissioning client, developers will never take it seriously

NPPF 2018

“A number of local authority respondents stated the view that the text in the revised Framework restricted their ability to require energy efficiency standards above Building Regulations...



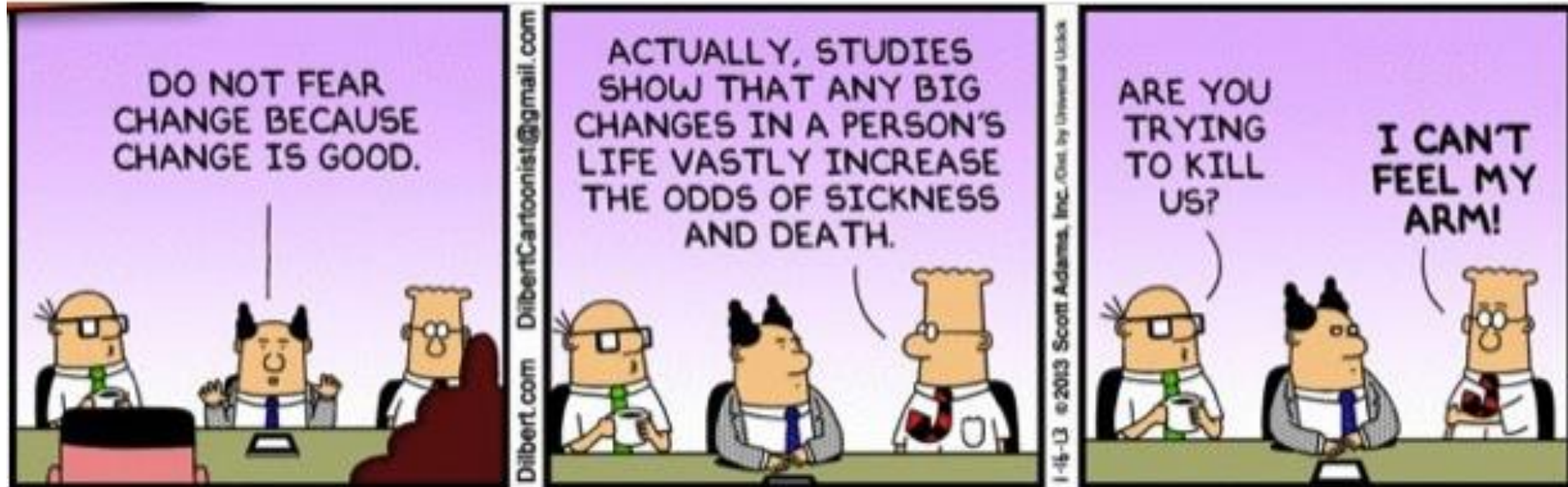
To clarify, the Framework does not prevent local authorities from using their existing powers under the Planning and Energy Act 2008 or other legislation where applicable to set higher ambition. In particular, local authorities are not restricted in their ability to require energy efficiency standards above Building Regulations.

The Government remains committed to delivering the clean growth mission to halve the energy usage of new buildings by 2030.”

Unlocking innovation and outcome: *Client leadership principles*

- Give a forward view of your programme
- Focus on outcomes ('Procuring for Value')
- Be ambitious...
- ... Consistently
- "A great client has a great supply chain";
 - Engage, enable, bring on future suppliers
- Aggregate (you are not as special as you think you are...)
- Think DFMA
- Think Lean, *in the right order* – Easier, Better, Faster, Cheaper
(Yes, cheaper is last)
- Use BIM; Information as a Deliverable

Concluding thoughts...



**Understand
CULTURE**

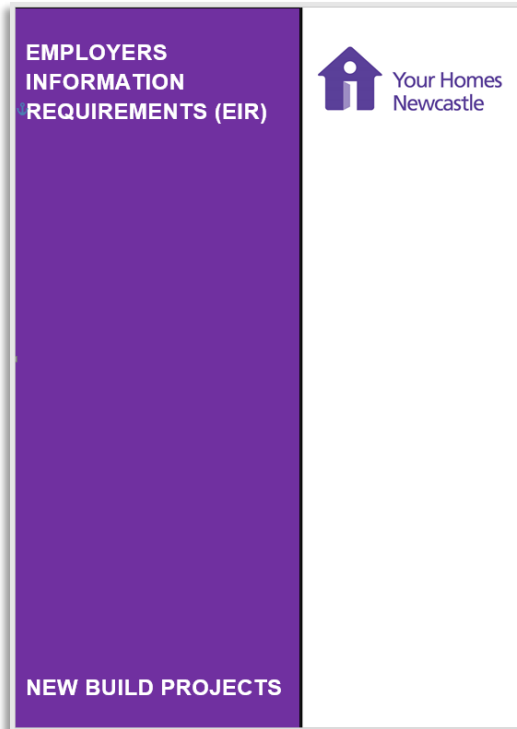
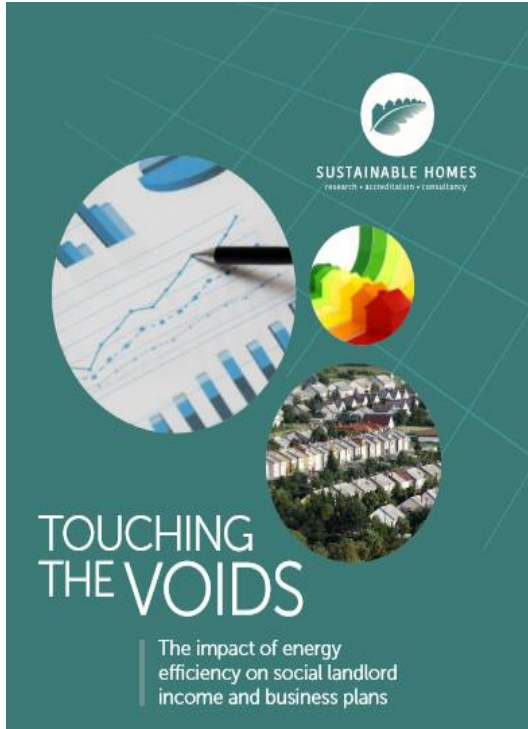


**Open up the
INNOVATION SPACE**

“I want you to find a bold and innovative way to do everything exactly the same way it’s been done for 25 years.”

**Carriers for
change?**

'It can't be done!'



30 years;
£7,300 per property
£105,000 per surveyor

- Performance gap; **greater energy use** for tenant
- Risk;
 - Overheating, poor indoor air quality
 - Damp, mould, condensation (HHSRS1)
- Higher operational costs and housing mgt costs; maintenance, turnover (voids and reinstatement), arrears, complaints
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- Opportunity costs;
 - Policy alignment (financial in **emissions**, sustainable tenancies)
 - Customer service excellence
 - **Future energy systems**
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 - Reputational damage

7.5%!

carbon
(s)