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Part L 2010 – An update

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All proposals subject to ministerial approval.

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Part L 2010 – the key issues

- Setting a robust CO_2 target
  - Avoiding unforeseen consequences
- Reduce energy consumption as well as CO_2 emissions
  - Security of supply is an important policy goal
- Improving levels of compliance
  - Improvements in actual rather than predicted performance
- Recognising it is one step on a longer journey

Proposed new build standards

- **Timetable for new homes**:
  - 25% improvement in 2010 — CSH energy level 3
  - 44% improvement in 2013 — CSH energy level 4
  - Zero carbon by 2016 — CSH energy level 6
- **Non-Domestic**:
  - Budget 2008: ambition for all new non domestic buildings to be zero carbon by 2019
  - Ambition for new schools and public buildings is 2016 and 2018 respectively
  - Important to take progressive steps towards this to decrease carbon and to stimulate innovation and new technologies
  - ***Current thinking*** is to adopt similar phased reductions for non-domestic buildings i.e. 25% in 2010

New build - the 5 compliance steps

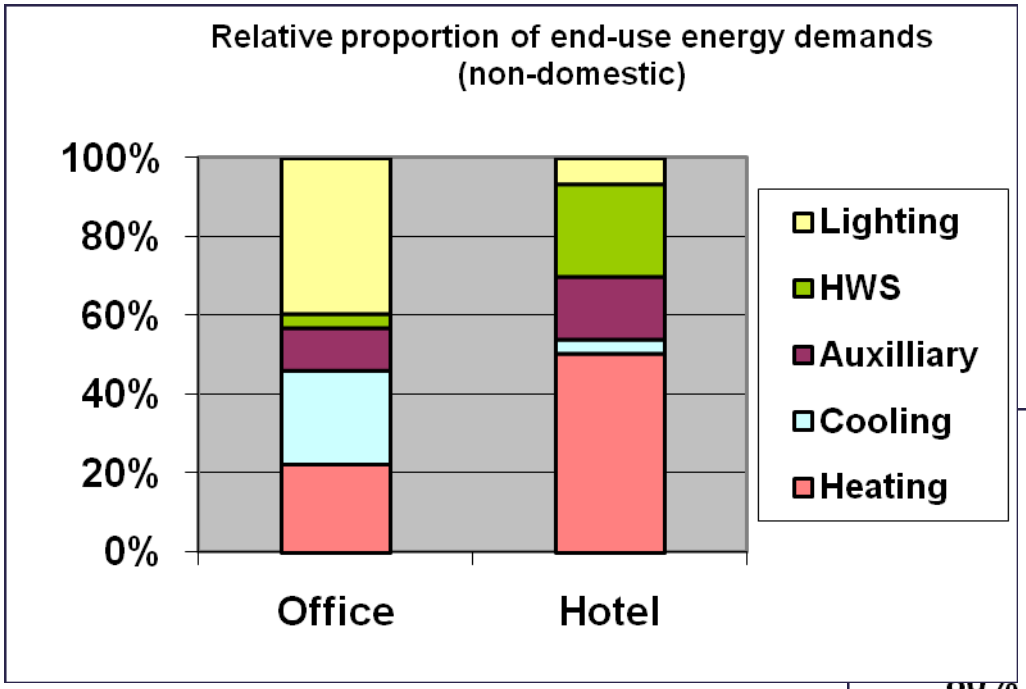
- BER<=TER
- Limits on design flexibility
- Limiting the effects of solar gains in summer
- Quality of construction & commissioning
- Providing information / O&M instructions

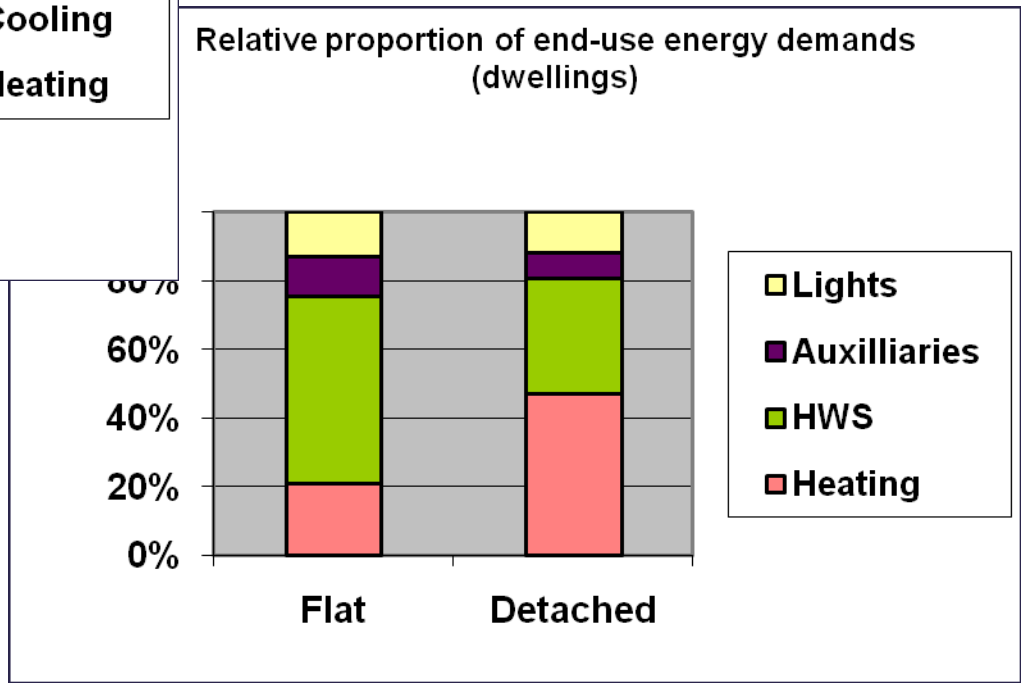
No changes proposed

Options for setting the TER

- 2002 notional + increased improvement factors
  - Familiar but takes no account of difficulties or opportunities for improving performance in different types of building
  - Technical difficulties
    - Non-zero party wall U-value
    - Changing emission factors
    - Impact of large rooflight area
- 2006 notional + straight 25% improvement factor
  - Retains all problems of 2002 notional (2006 based on it)
  - Code 4 anomaly
- 2010 notional
  - Improvement factor varies by type (25% overall)
  - Depends on mix of end uses

Criterion 1: impact of varying end-uses





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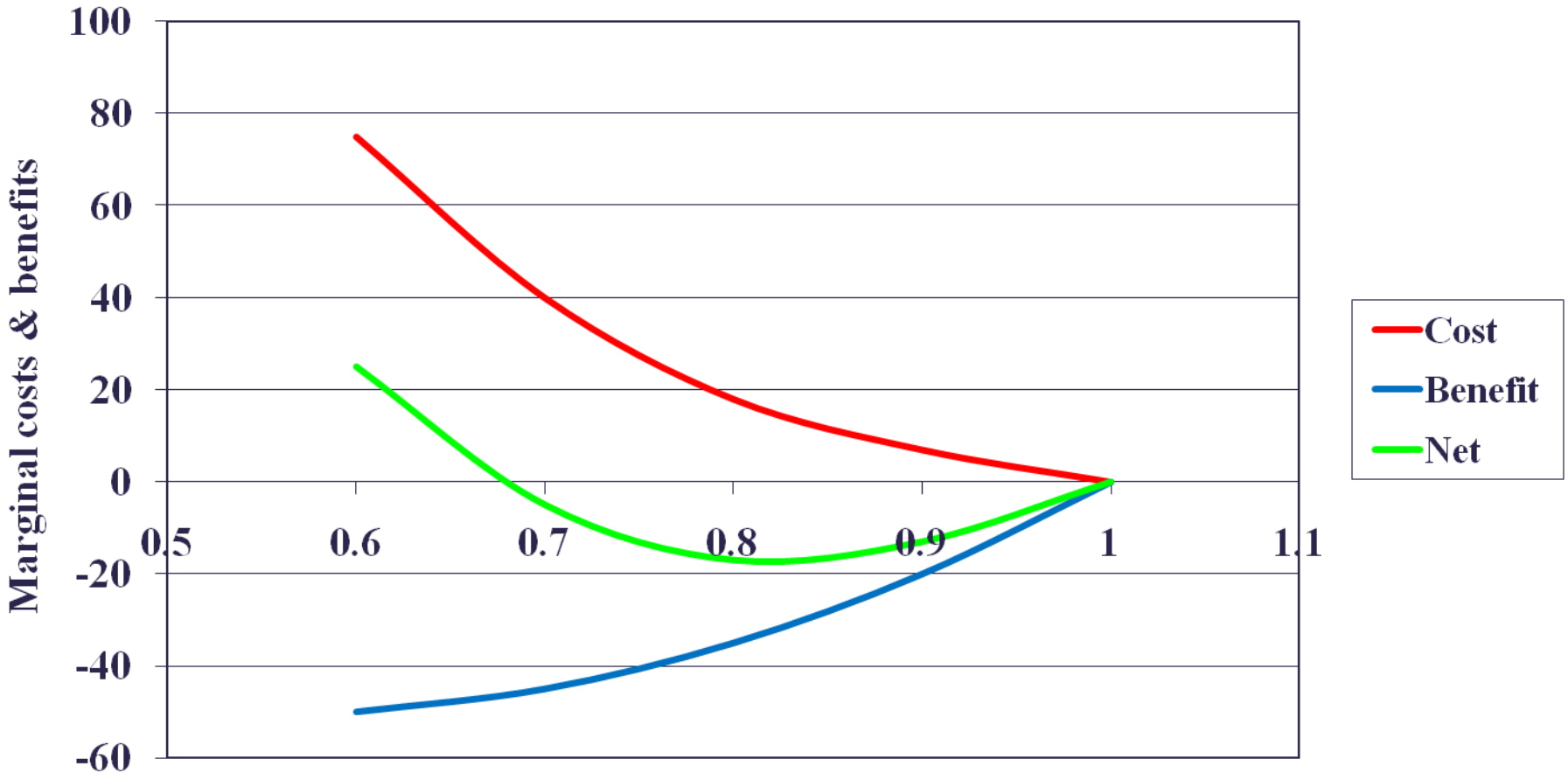
Cost benefit of energy efficiency measures



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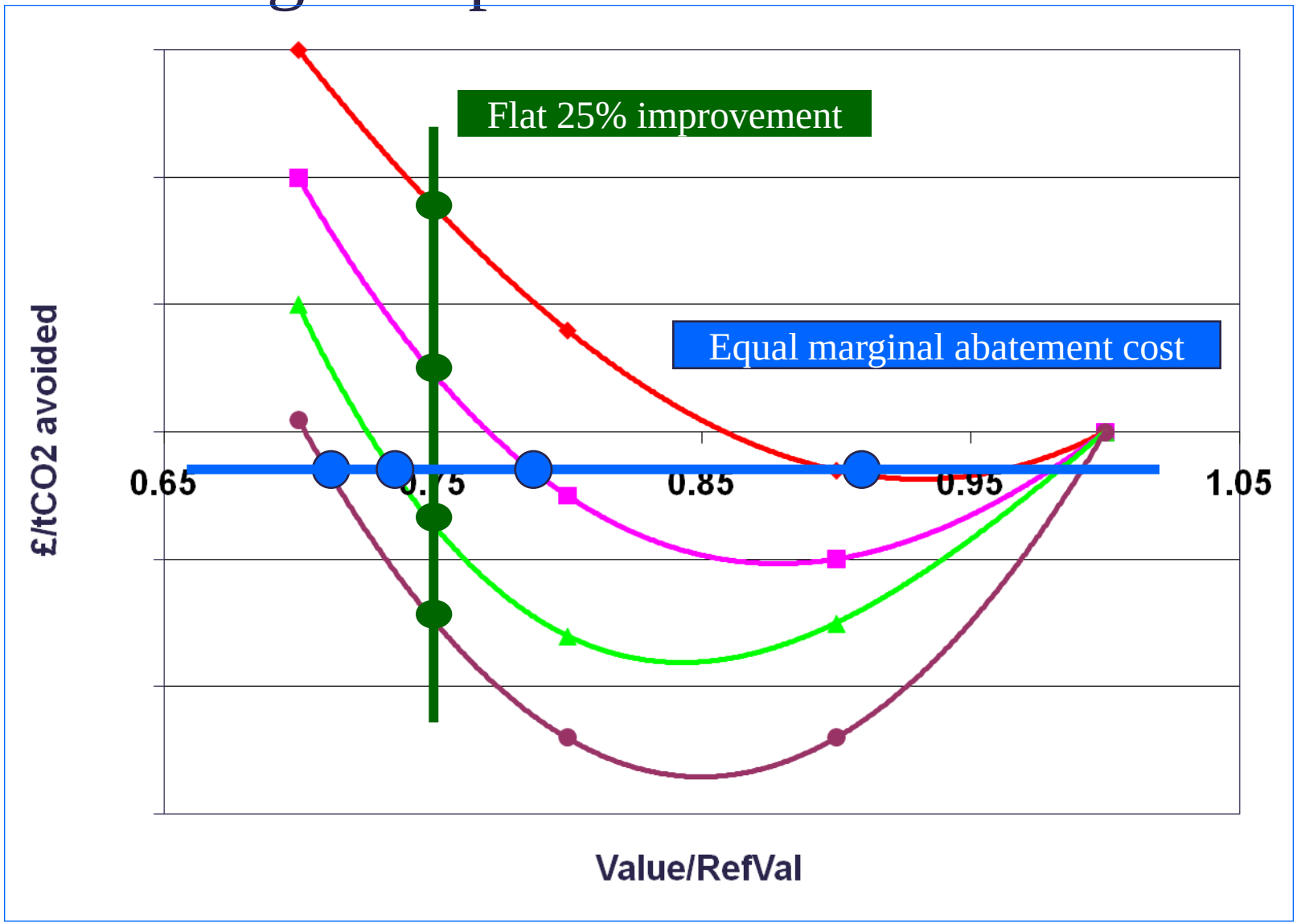
Determining the specification



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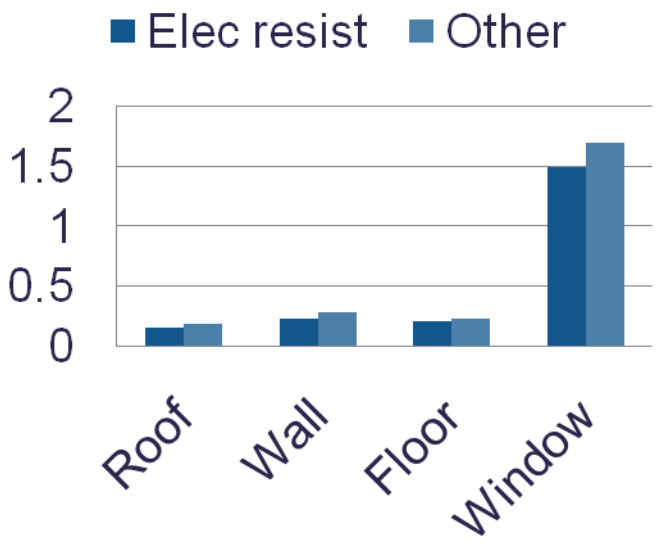
Application

- 2 notional dwellings
  - Electric resistance heating
  - All others (inc. heat pumps)



- 3 notional non dom buildings
  - Top-lit
    - Warehouses, retail sheds …
  - Side-lit
    - Commercial, residential, …
  - No-lit
    - Theatres, cinemas
  - Defined through activity database
    - Link to planning use classes

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Impacts of aggregate approach

- On design process?
  - No change - approved software generates 2010 TER
- On design solutions?
  - Target self-adjusts based on mix of end uses
  - Achieves national target in most cost effective way
- Checking compliance?
  - Check actual against notional specification
  - Identify areas of claimed high performance
  - Feed into risk-based inspections

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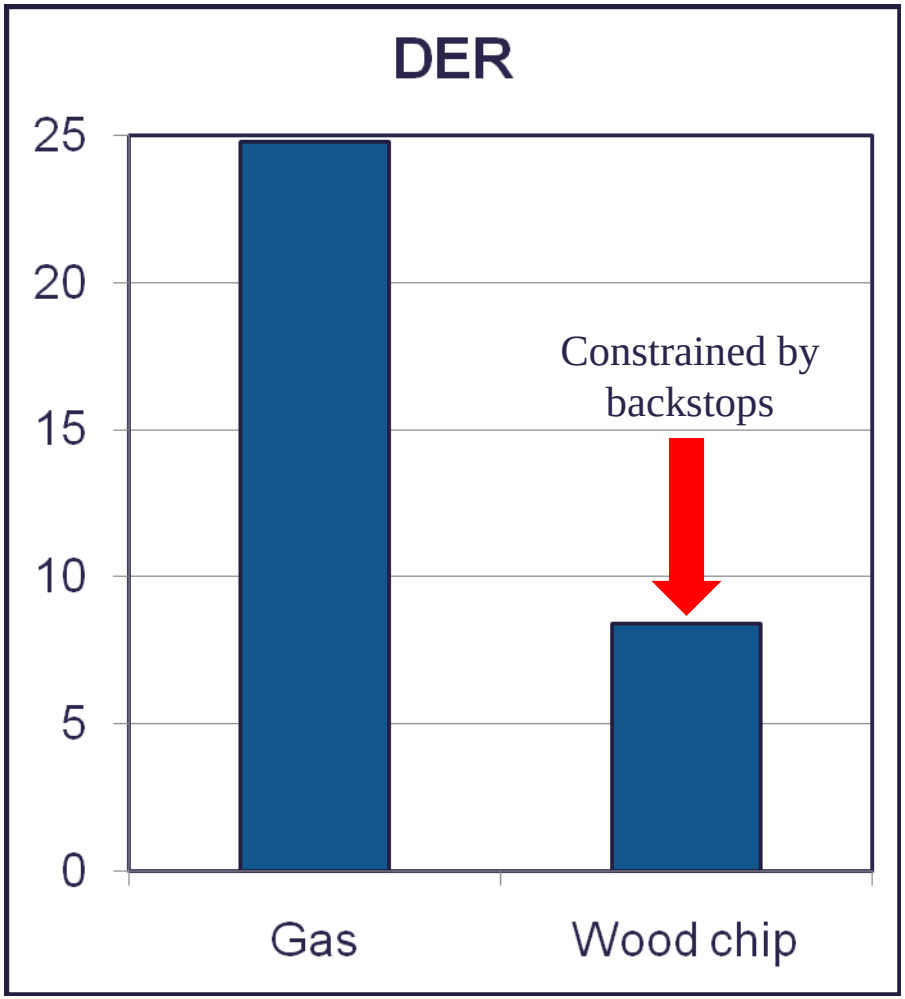
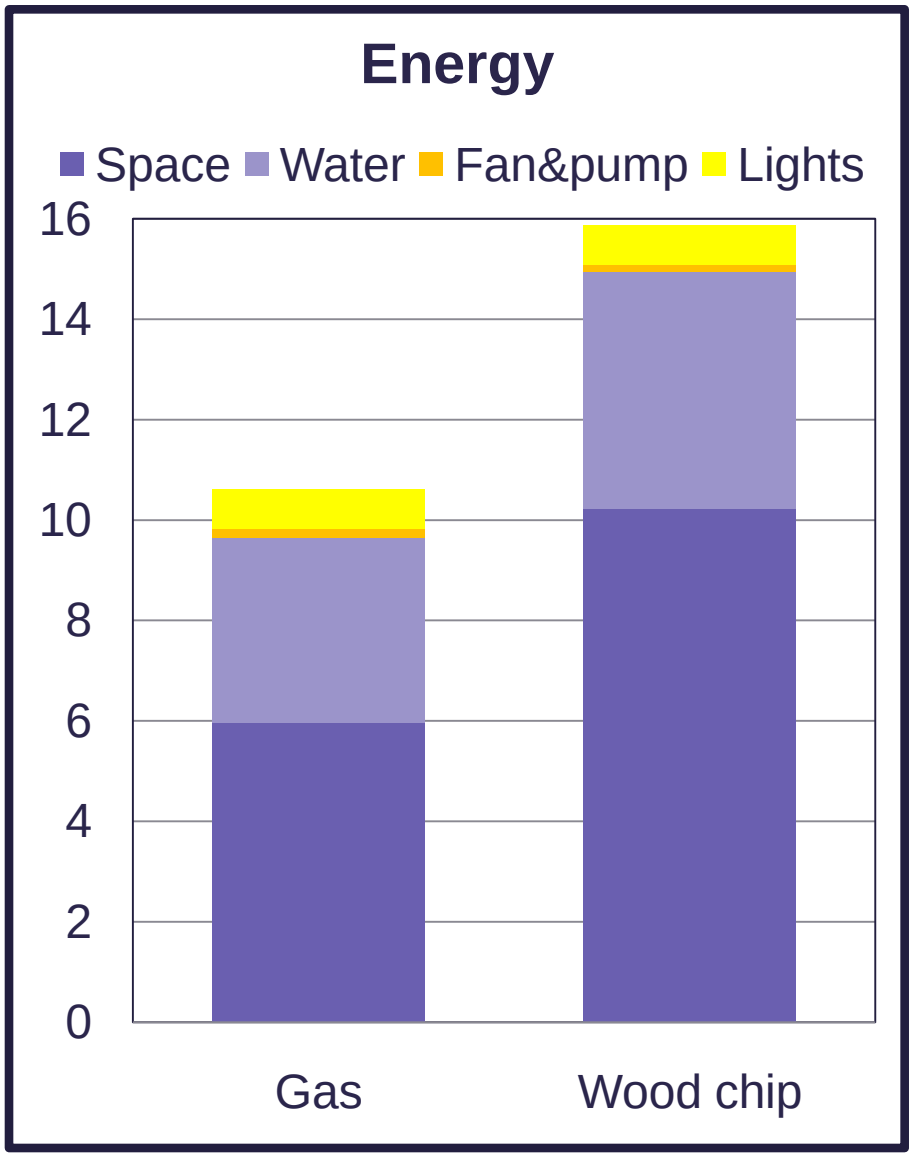
Criterion 2 – limits on design flexibility

- Generally left unchanged
  - New standards for swimming pool basins
- New building services compliance guides
  - Heating, hot water, ventilation, cooling, lighting, pumps, renewables.
- Principle objective is to prevent “greenwash”
  - Renewable energy systems rescuing buildings with poor energy efficiency
  - Approach refined by concept of “fuel based TER”
    - CO_2 target varies by heating fuel
      - Renewable fuel tougher, off gas grid easier

Biomass heating





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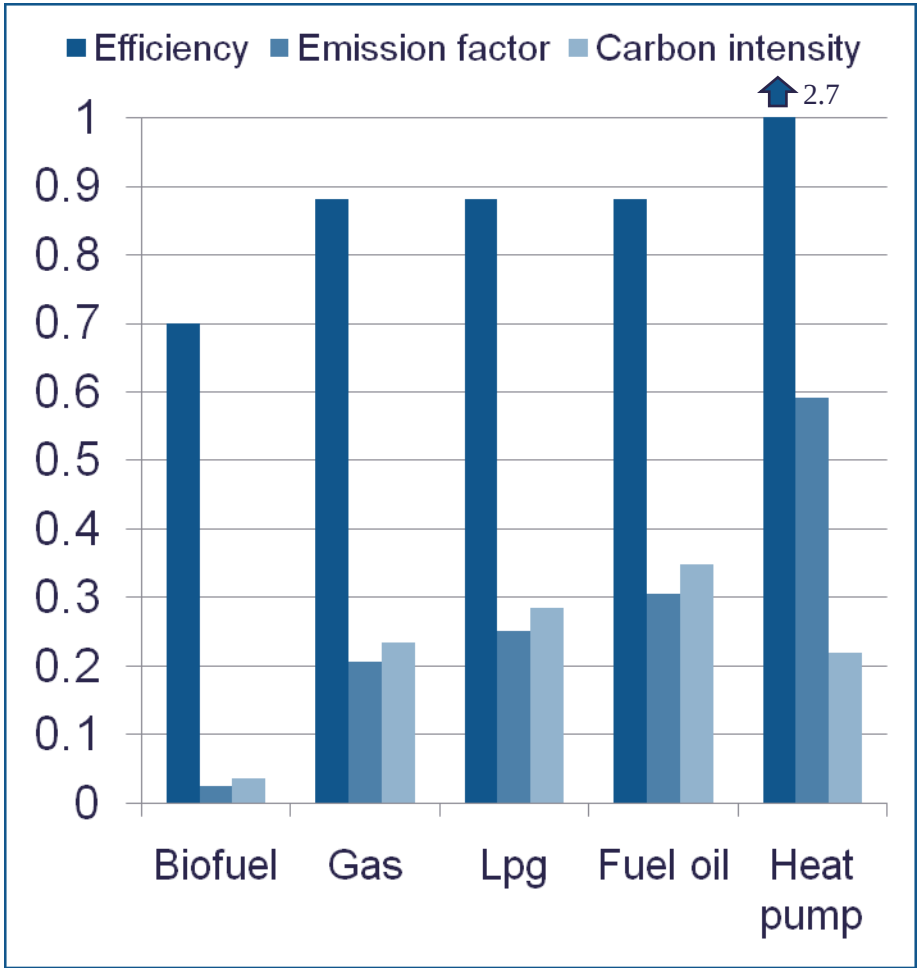
Fuel based TER achieves similar energy demand

- Separate fabric spec for elec resistance heating
- For other fuels/technologies
  - Common fabric spec
  - Separate emission factor & efficiency depending on actual heating fuel
  - Ratio gives carbon intensity of heating
    - $kgCO_2/kWh_{heat}$
- New emission factors



Improving compliance: the responsibility chain

- Energy Assessor checks component specification is consistent with claimed performance
  - U-values, plant efficiencies etc.
- Software does detailed technical check that inputted performance parameters satisfies criteria 1, 2 & 3.
- BCB checks ***specification*** against as-built
  - Key features list provided with *design stage submission* will help to prioritise inspections
- Developer confirms as-built conforms to as-built BER

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Criterion 3 – Limiting effects of solar gain

- AD text essentially unchanged
  - Test applied even if dwelling has mechanical cooling
    - Test based on dwelling without cooling but with ventilation
- SAP 2009 calculation updated
  - Impact of thermal mass now incorporated

Criterion 4 – Building performance consistent with BER

– Issues that need to be considered

Compliance

- Does what is specified conform to standards in AD?
  - U-values of windows (glass or glass+frame)
- Is what is specified actually constructed?
  - Product substitution
- Does what is constructed deliver the intended performance?
  - Poor installation practice / inappropriate application
- Is what is calculated what actually happens in practice?
  - Party wall thermal bypass

Performance

Need to recognise there are 2 "credibility gaps"

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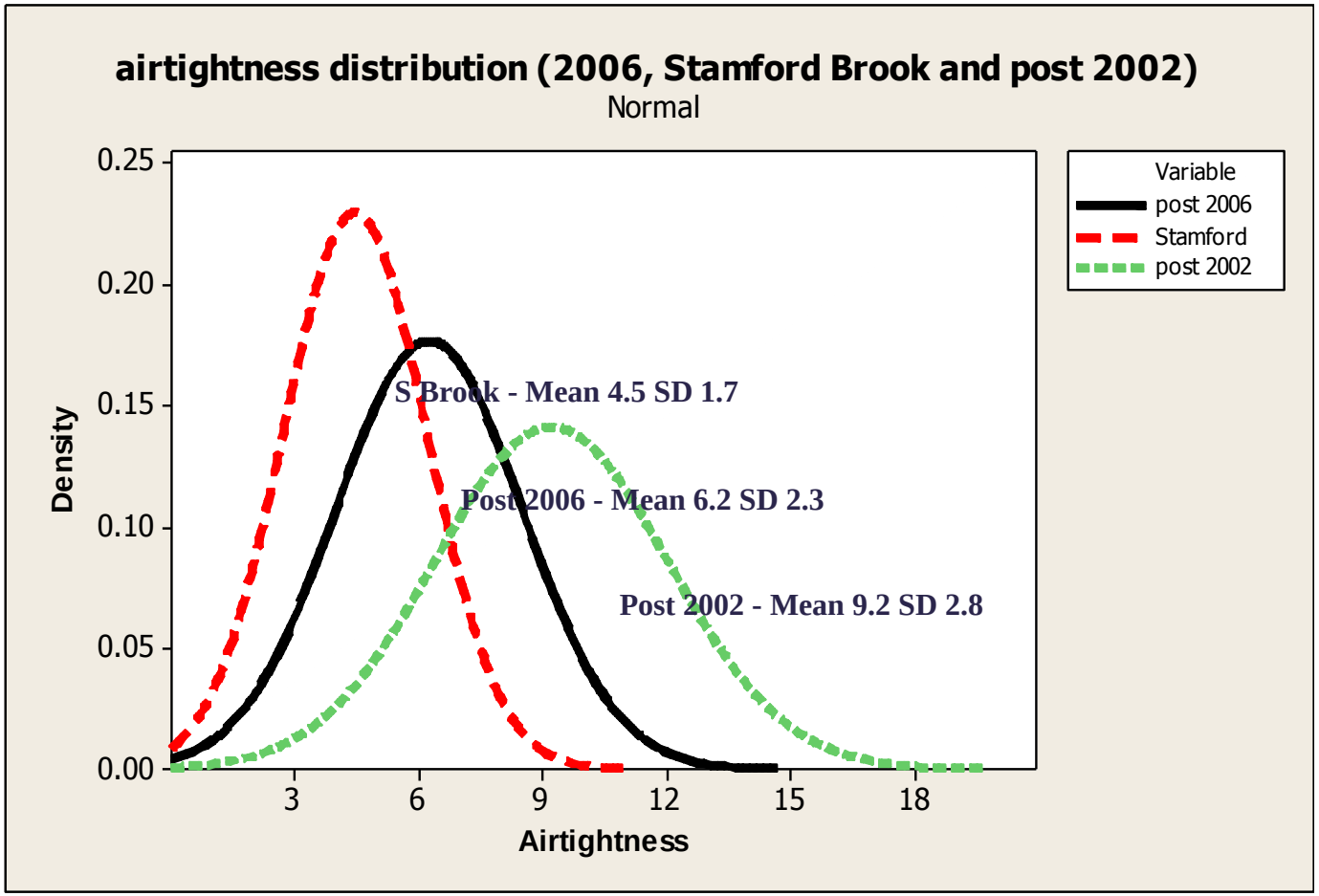
Criterion 4 – some success on airtightness



Some dwellings achieving a very low permeability (<3). Hence the need for parallel Part F review

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Changes to pressure test procedures

- Change to test method B
  - Trickle vents temporarily sealed
  - Method is better test of building envelope
- Improved definition of ***dwelling type***
- Increase in sampling rate (~ doubled)
- Criteria for non-BINDT registered testers
  - Recent calibration of kit
  - Appropriate training

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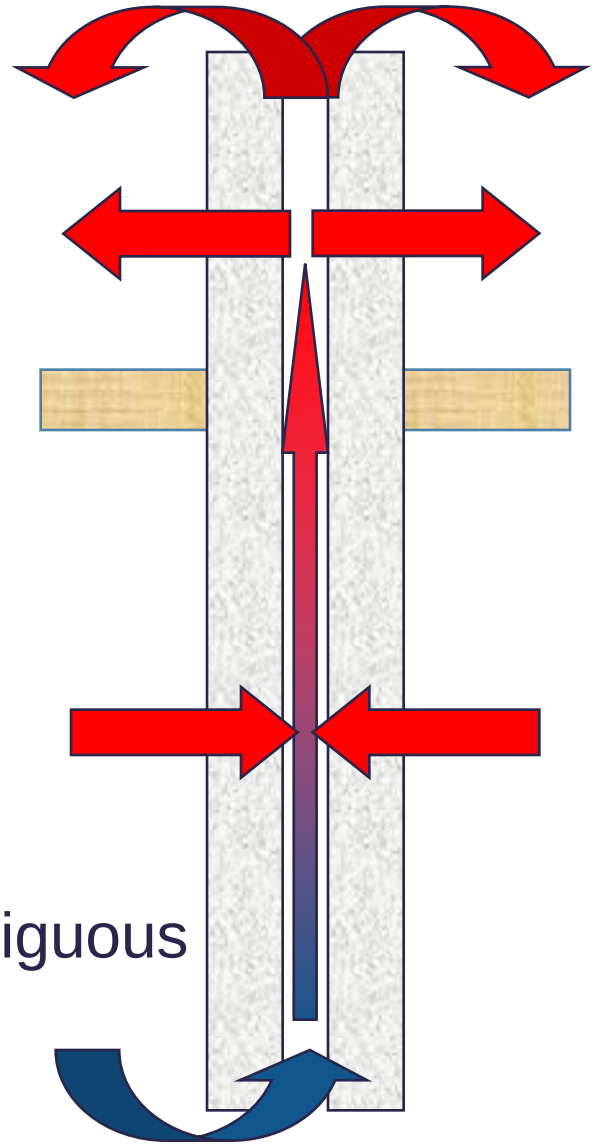
Criterion 4 – some surprises

- Cavity party wall is not zero heat loss
  - 2010 Default U-values
    - Solid party wall 0.0 W/m^{2}K
    - Fully filled cavity 0.0 W/m^{2}K
    - Perimeter sealed cavity 0.2 W/m^{2}K
    - Unsealed cavity 0.5 W/m^{2}K
- Particular case of general problem
  - Insulation & air barrier should be contiguous



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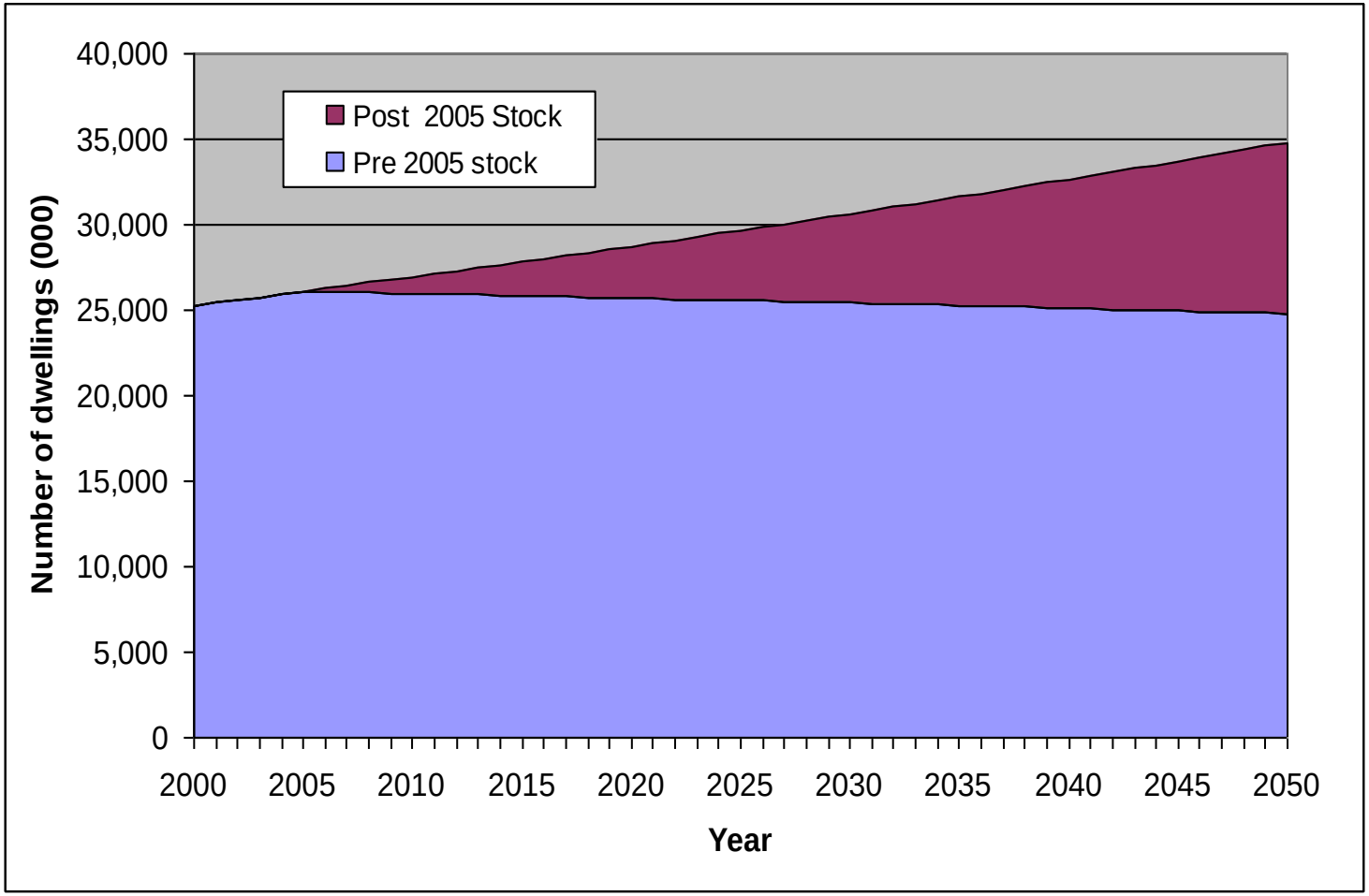
Quality of construction & commissioning

- Linear thermal transmittances
  - IP 1/06 & BR 497 for standard & methodology
    - ACD scheme(s) (no margin added)
      - Calculation of ψ-value by “accredited expert” calculator
        - Linked to approved software tools
      - Assessment of buildability & robustness
      - Sample inspection & feedback loop
    - Unaccredited detail/accredited calc: +25%
    - No accreditation: y=0.15, generic from IP 1/06 + 50%
- Commissioning plan
  - Provided to BCB with deposit of plans

Importance of existing stock



Source: Housing Statistics – ODPM 2004

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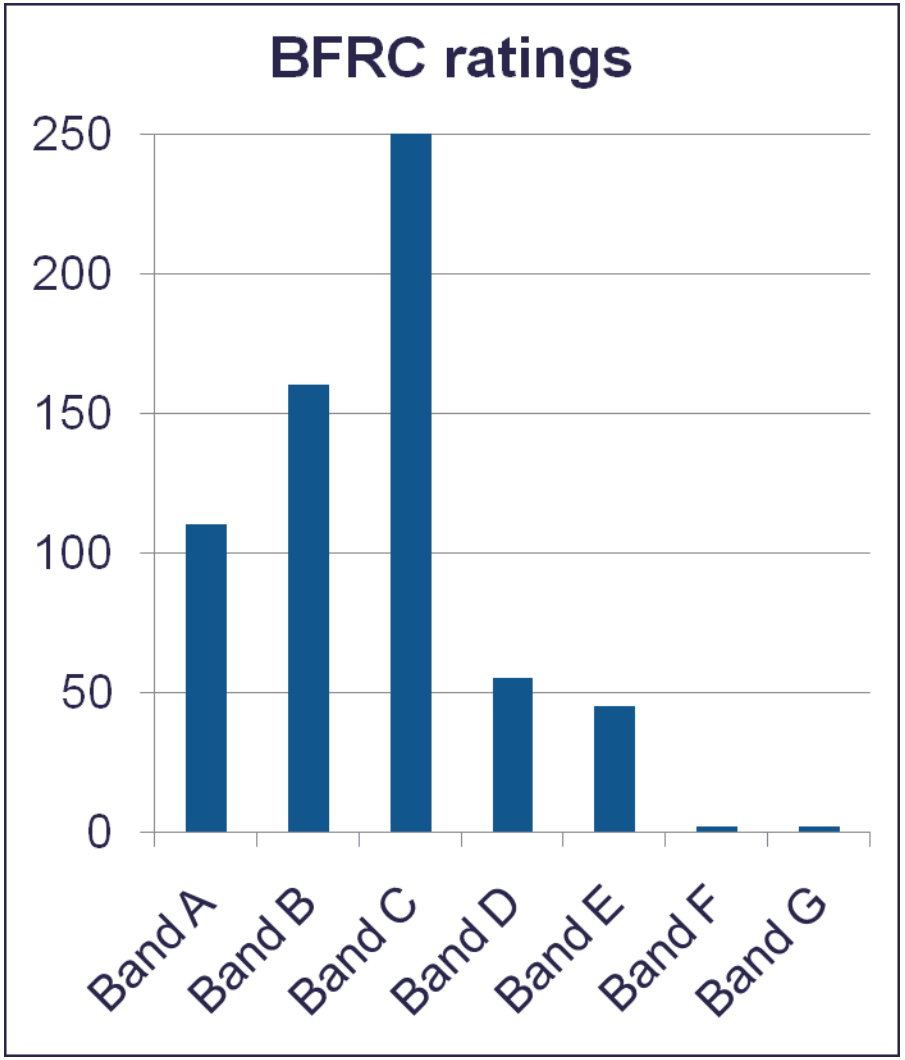
Existing buildings

- General review of standards
  - Window standards in terms of *Window Energy Rating*
    - Band C or better
      - Typically U~1.5 W/m^{2}K
    - Centre-pane U-value for exceptional cases (one-offs)
- Revised definition of *renovation* in relation to thermal elements



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Potential de-exemption of conservatories

- Consultee views being sought for de-exempting from Part L
- If comply with Part L, then proposed that
  - Thermal separation to standard of existing building
  - Independent temp & (automatic?) on/off controls
  - Elemental standards as for conventional extension
  - Secure ventilation openings (inc. minimum at high level)
  - Should the work be
    - Notifiable?
    - Or left for LA to check if they feel it is appropriate?

Consequential improvements

- Eliminate 1,000m^2 threshold
  - So would apply to dwellings and small non-domestic
- Additional “trigger” of increase in habitable (conditioned) area
  - To pick up loft / garage conversions
- Improvements taken from EPC list
  - Specific to building if available
  - SAP/SBEM auto list if not.
- Planned work can satisfy consequentials

Conclusions

- Proposals for consultation
  - Your opportunity to influence final documents
    - If you don't like it (and if you do!) let us know;
      - What's wrong & *how it can be improved*
- Many other changes of detail
  - Download the consultation package
    - 4 draft ADLs and an ADF, 3 compliance guides, Impact Assessment, Changes to NCM, Improving compliance, Proposed ACD scheme, Future thinking paper, Dissemination & training
- Happy reading!!