

SPAB STBA Annual Conference 2021

# PAS 2038 – the new UK standard for non-domestic retrofit

29 September 2021

**Dr Peter Rickaby**

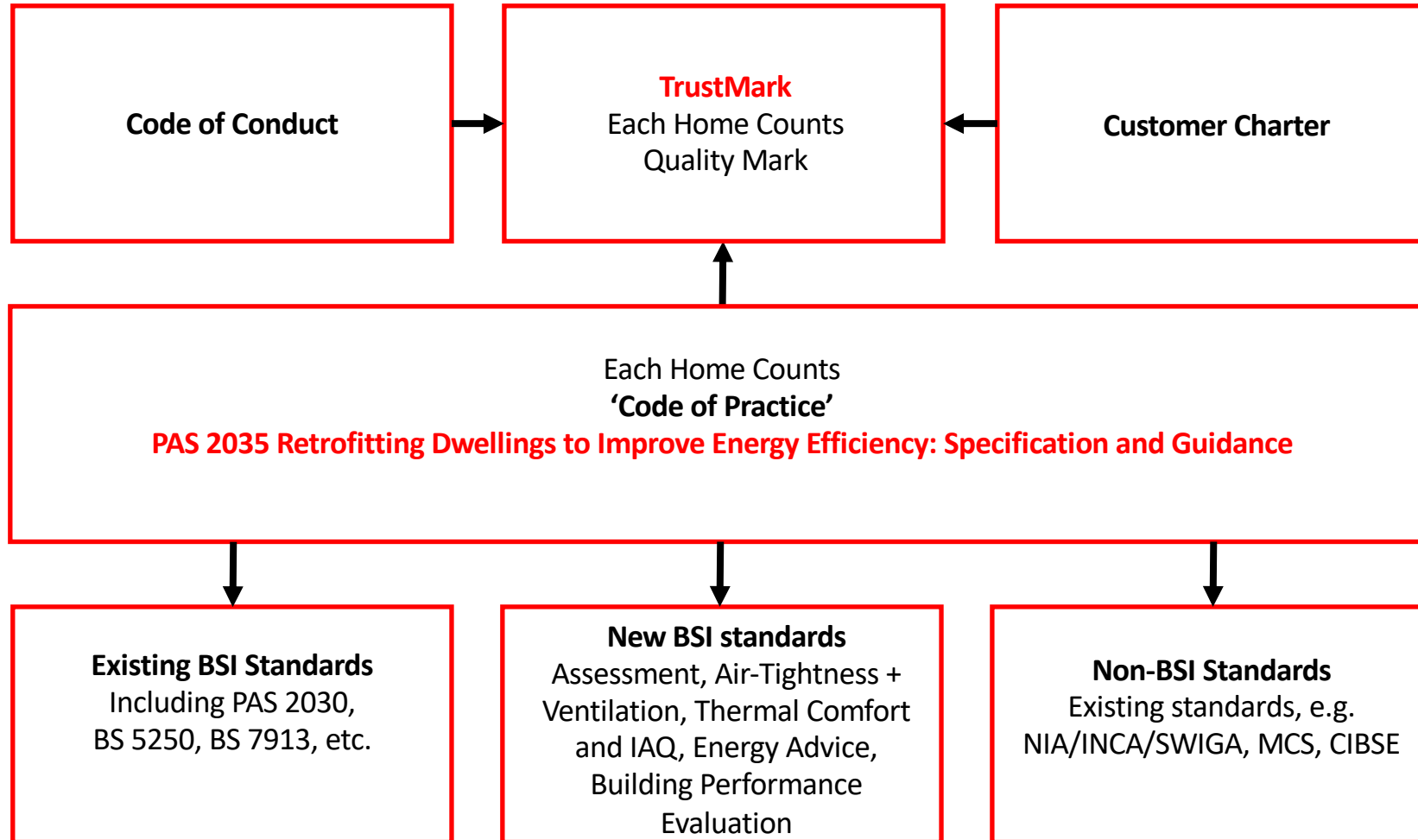
UK Centre for Moisture in Buildings, UCL  
Chair, BSI Retrofit Standards Task Group  
Technical Director, The Retrofit Academy

# BSI Retrofit Standards Task Group

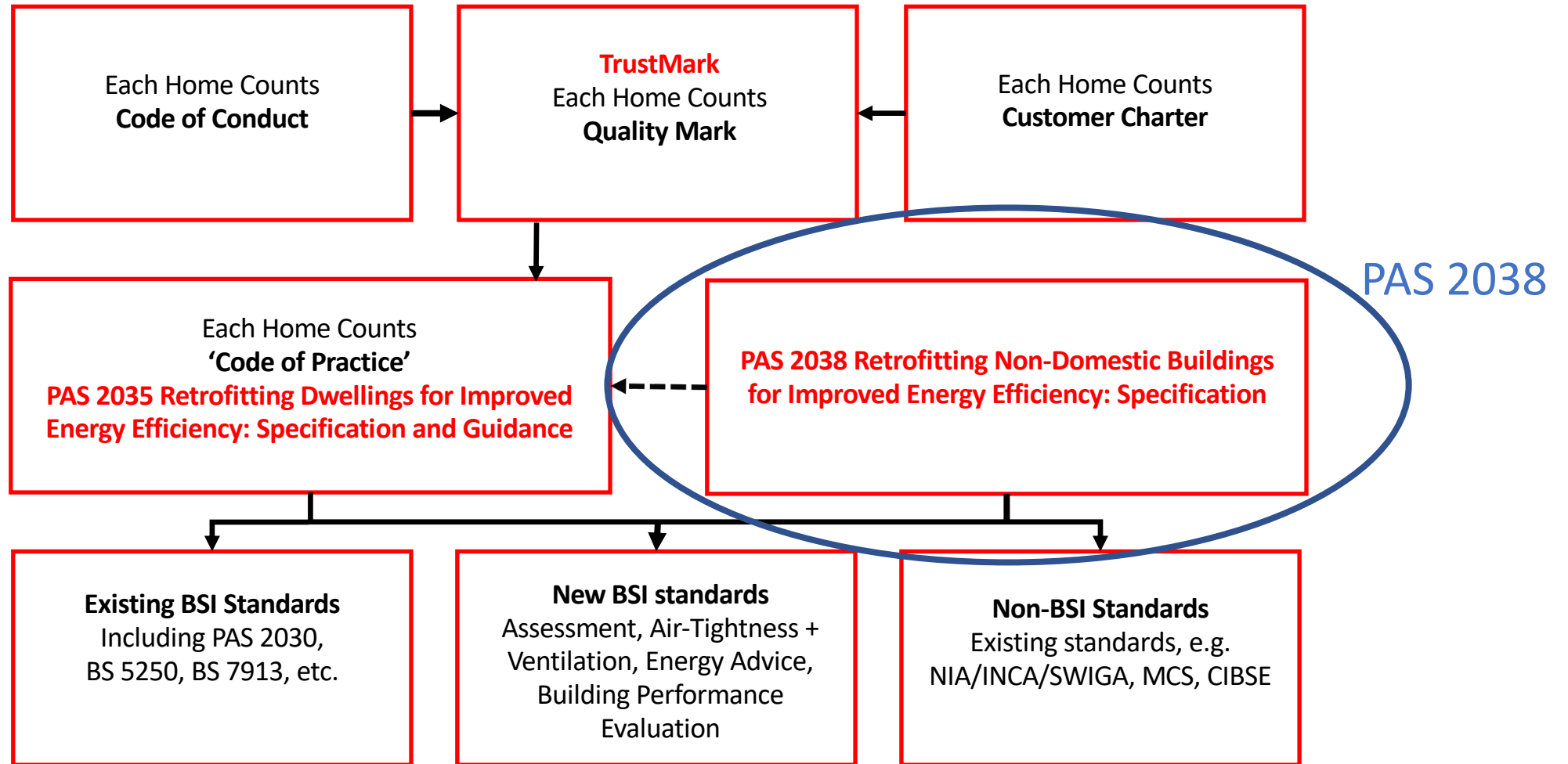
## Objectives

- Improve functionality and durability of buildings
- Improve the comfort and well-being of occupants
- Improve energy efficiency
- Reduce environmental impact
- Protect and enhance architectural heritage
- Minimise the 'performance gap'
- Avoid unintended consequences

# BSI Retrofit Standards Framework



# BSI Retrofit Standards Framework



# PAS 2038

- The new UK non-domestic retrofit standard
  - Published July 2021
  - Available for adoption now (no transition period)
  - Covers retrofit of all non-domestic buildings
  - Steering Group included representatives of STBA, HE, HES, Cadw, UKCMB
- Sponsored by BEIS
  - To underpin forthcoming policy
  - For building over 1000m<sup>2</sup> the Government is planning a rating scheme based on international practice (e.g. NABERS)
  - First step: mandatory disclosure of individual building ratings
  - If the energy performance of the stock does not improve, Government may regulate to ensure that it does
  - For rented buildings, EPC B by 2030 confirmed by Energy White Paper
  - These policies cover 80% of the energy use; for the remaining 20% in smaller owner-occupied buildings Government is exploring regulation

# Non-Domestic Buildings

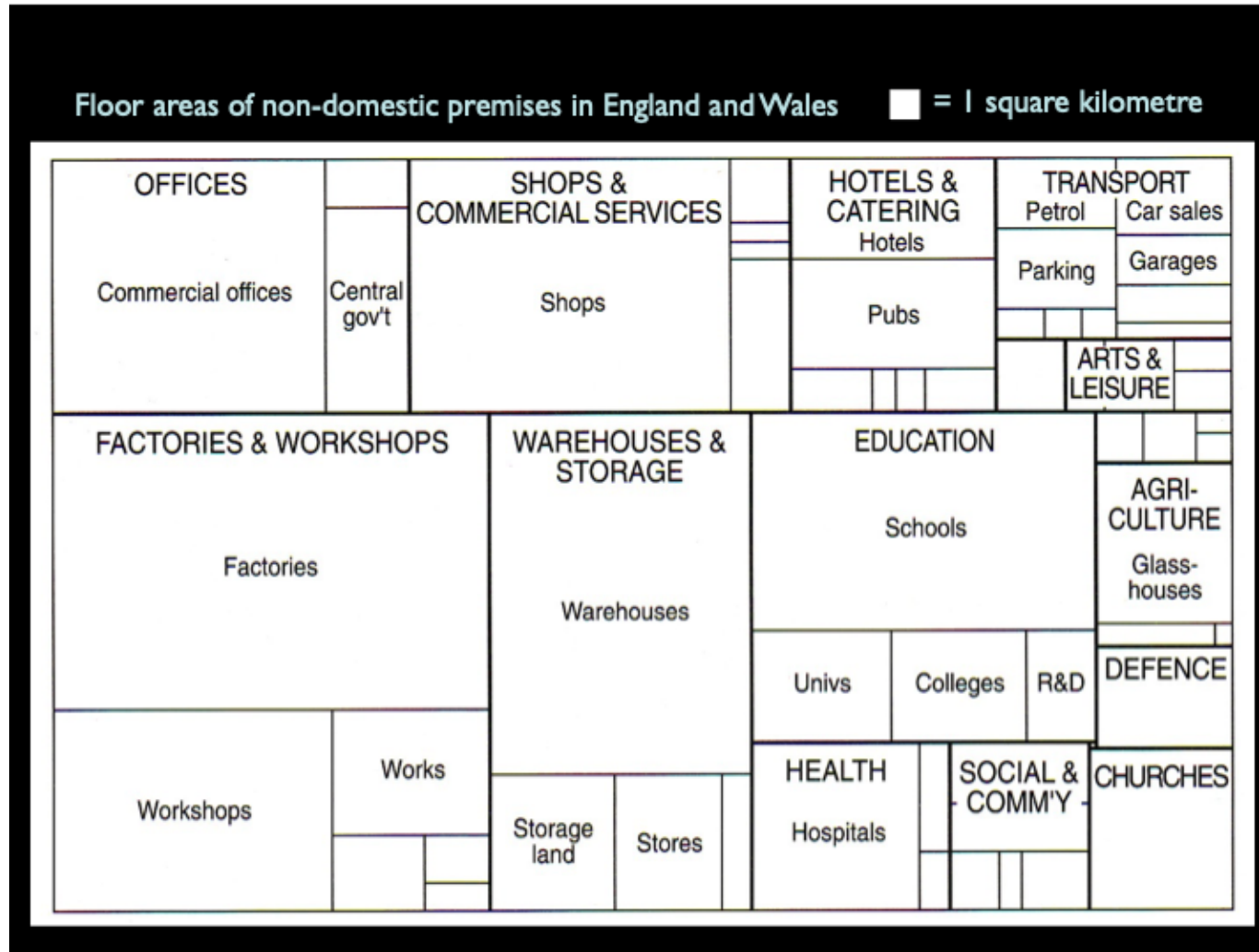
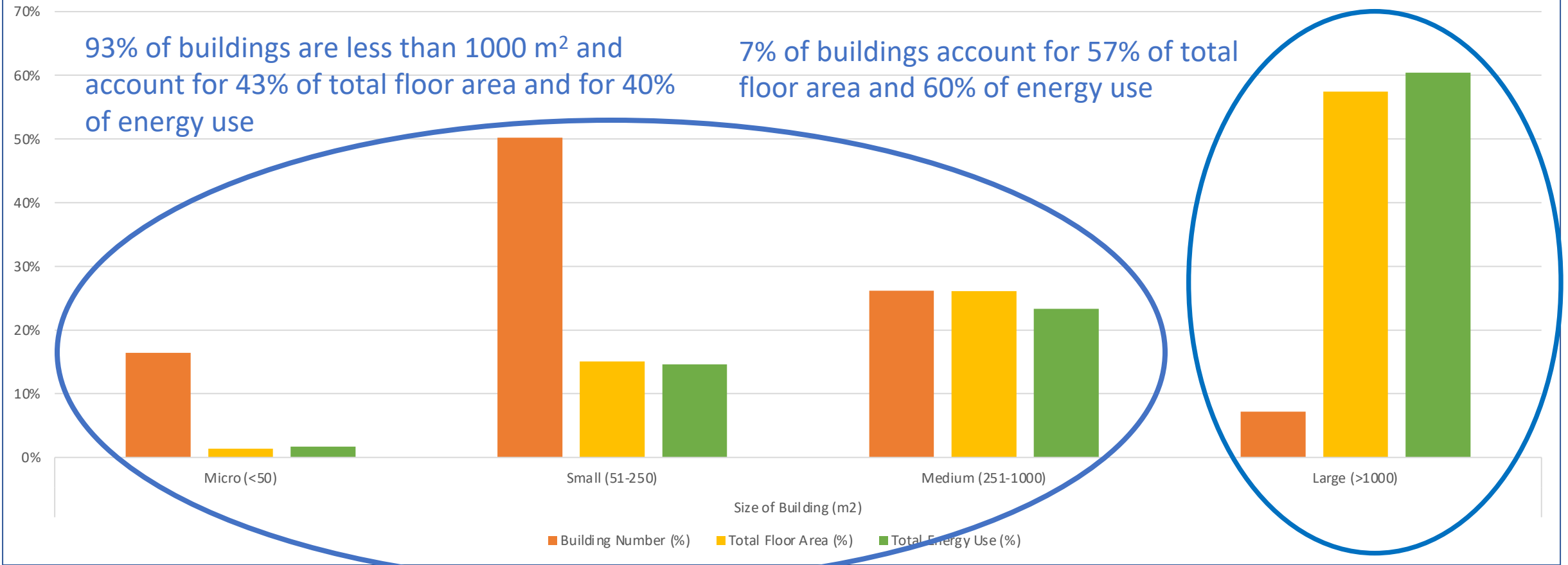


Diagram courtesy of University College London Energy Institute (Non-Domestic Building Stock Project)

# Non-Domestic Buildings

## All Private Non-Domestic Buildings, England and Wales

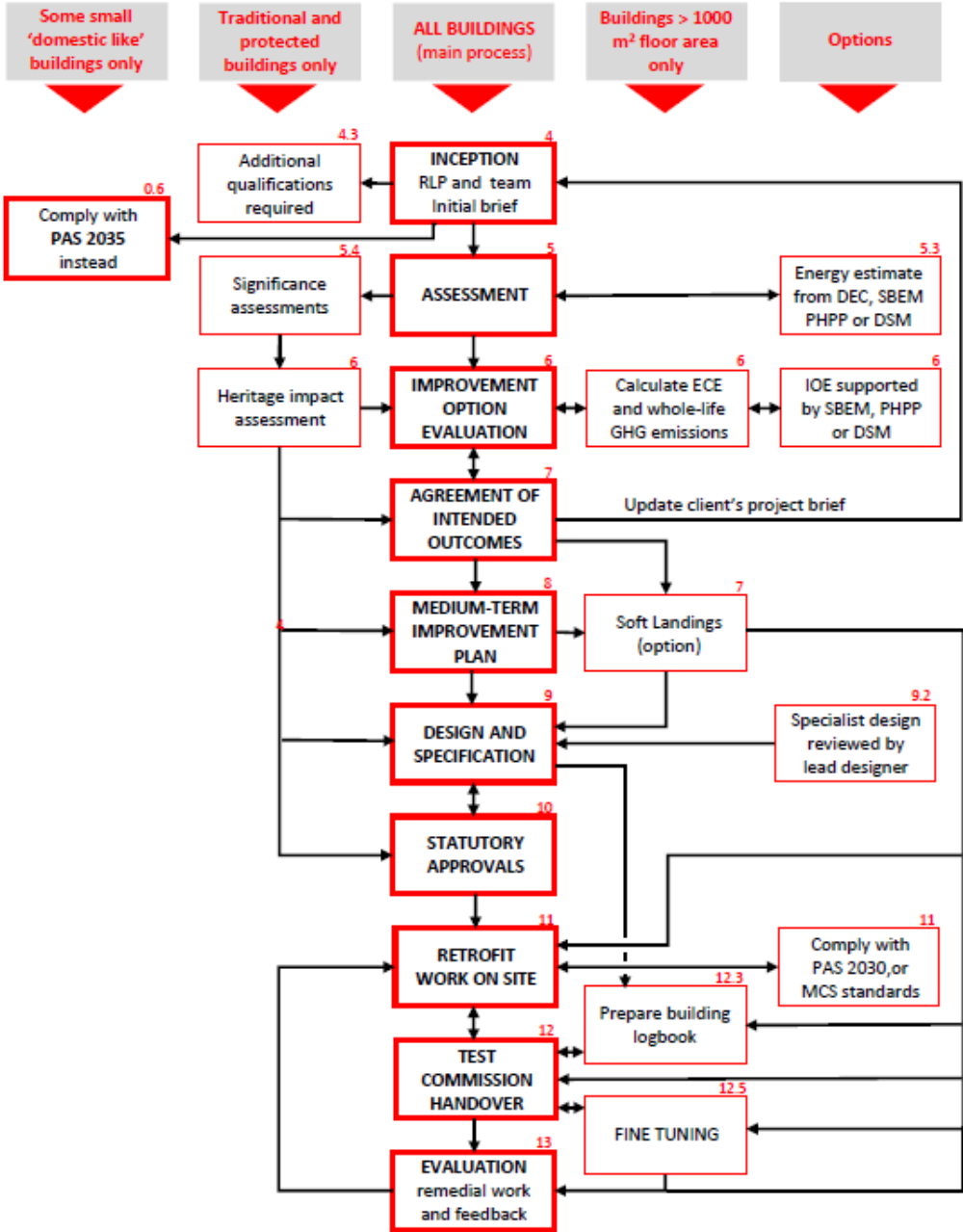


# Non-Domestic Buildings

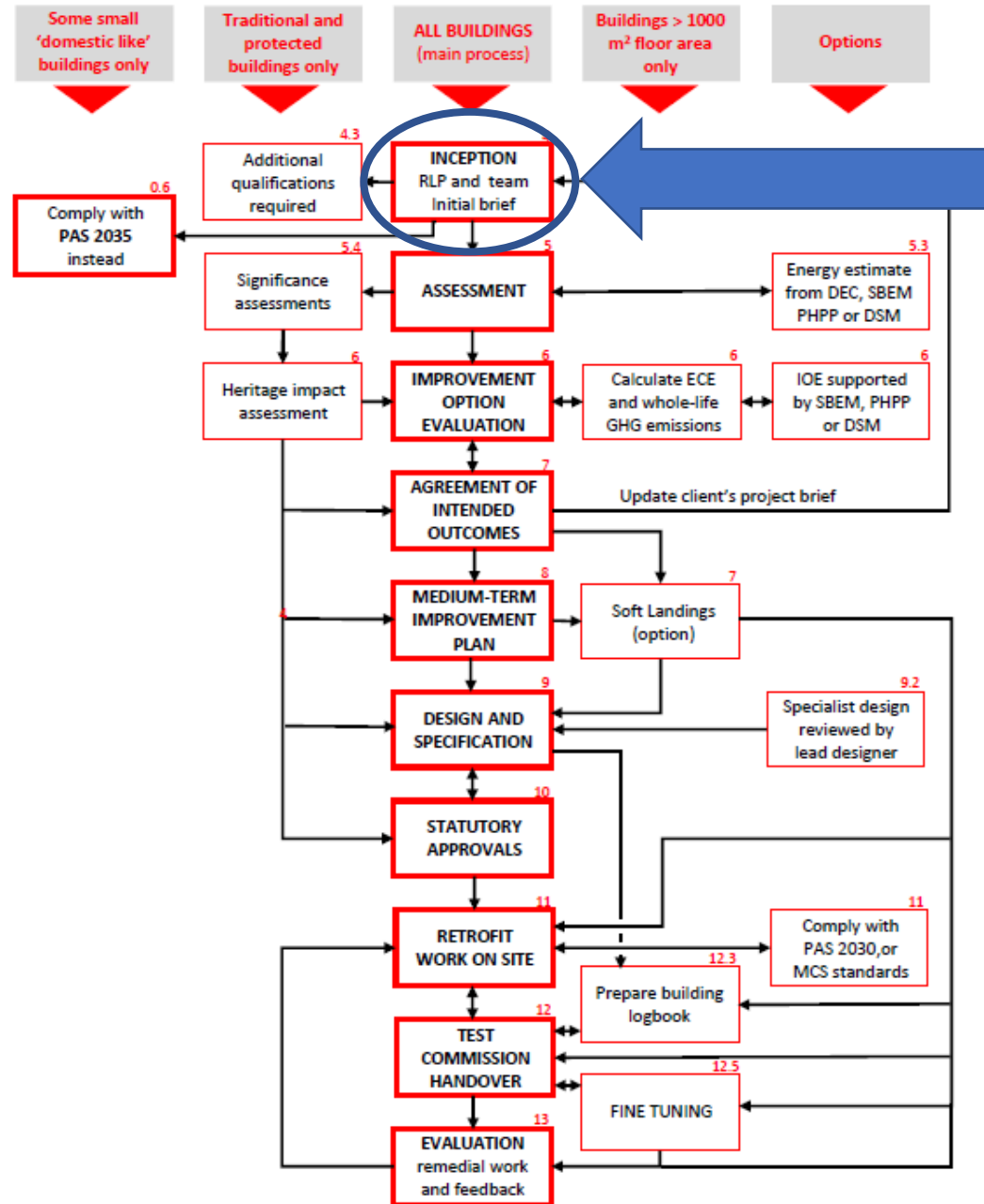
- Two million premises
  - Everything from corner shops to The Shard
  - Three 'bulk classes': offices, shops, industrial buildings
  - Relatively few very large buildings use most energy
  - Multiple tenants in some 'base buildings' (offices, shops)
  - Multiple scattered buildings or tenancies in some stocks
  - Many big sheds in the industrial sector (some chilled)
- Non-domestic retrofit
  - Most often combined with refurbishment or refitting
  - 'Base buildings' often separate from tenants' spaces
  - More professional involvement than domestic sector



# PAS 2038 non-domestic retrofit

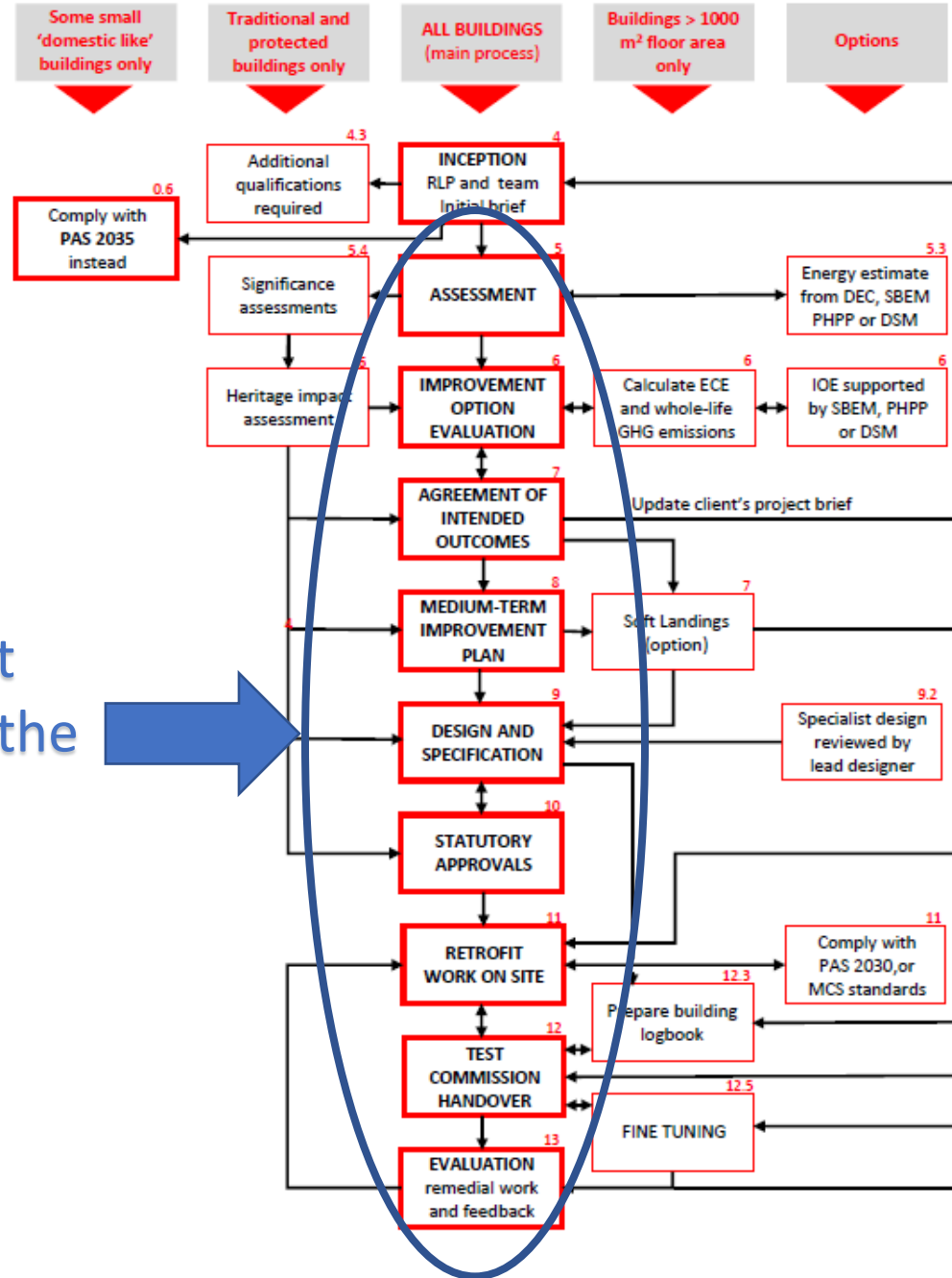


# PAS 2038 non-domestic retrofit

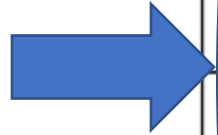


Retrofit Lead Professional must be appointed for every project

# PAS 2038 non-domestic retrofit



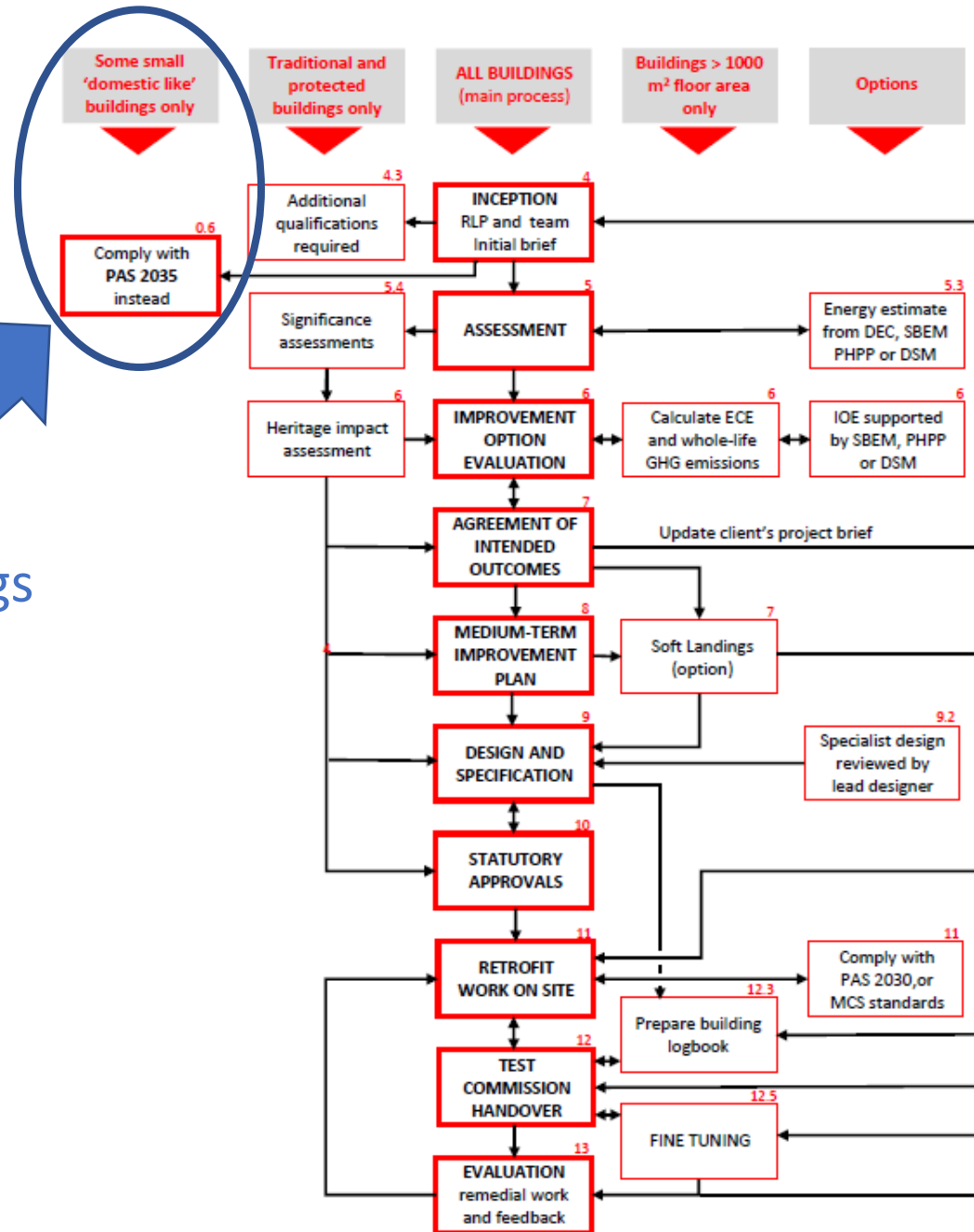
The specified retrofit process is similar to the PAS 2035 process



# PAS 2038 non-domestic retrofit

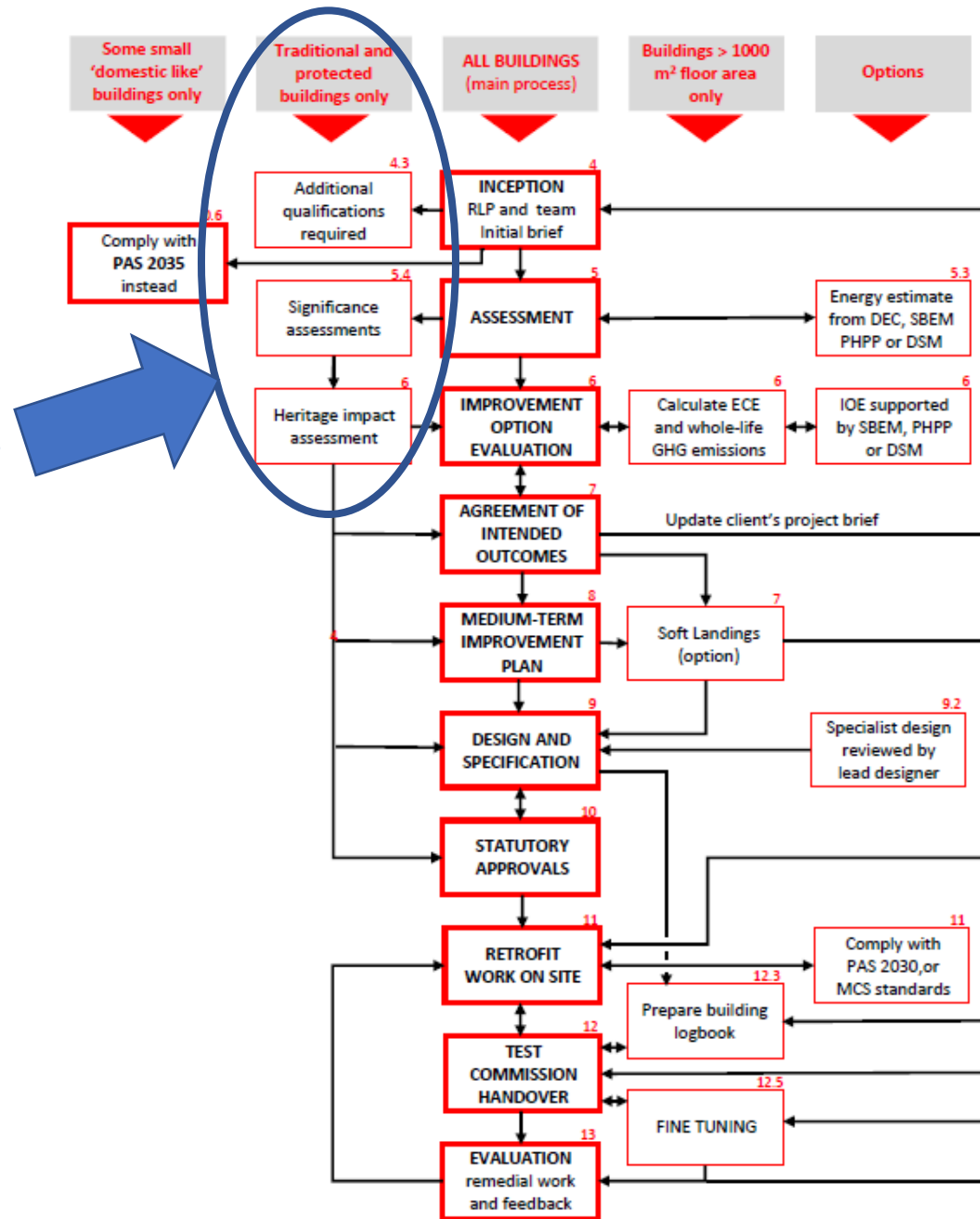


Option for retrofit of some smaller buildings to comply with PAS 2035 instead

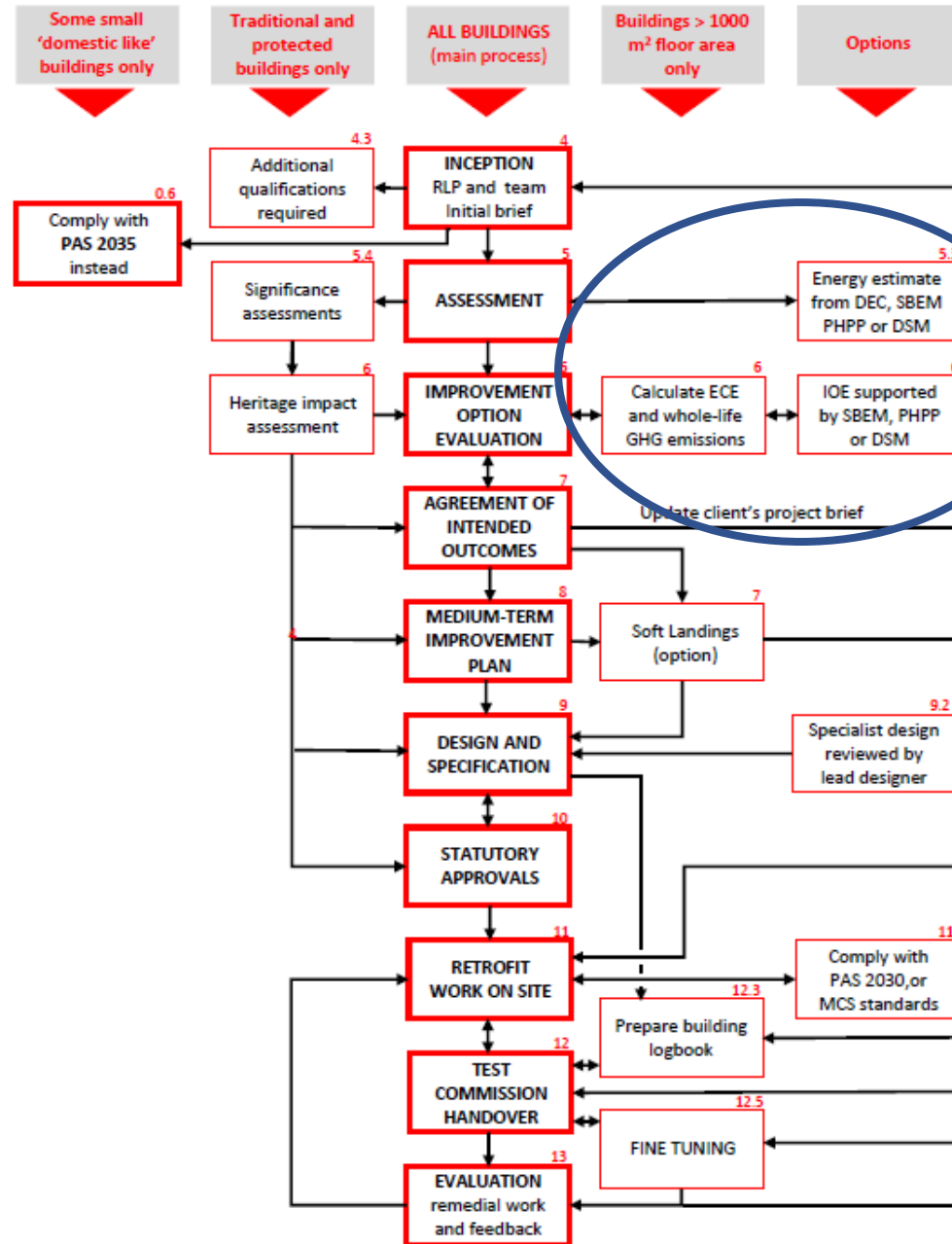


# PAS 2038 non-domestic retrofit

Additional requirements  
for traditionally  
constructed and  
protected buildings

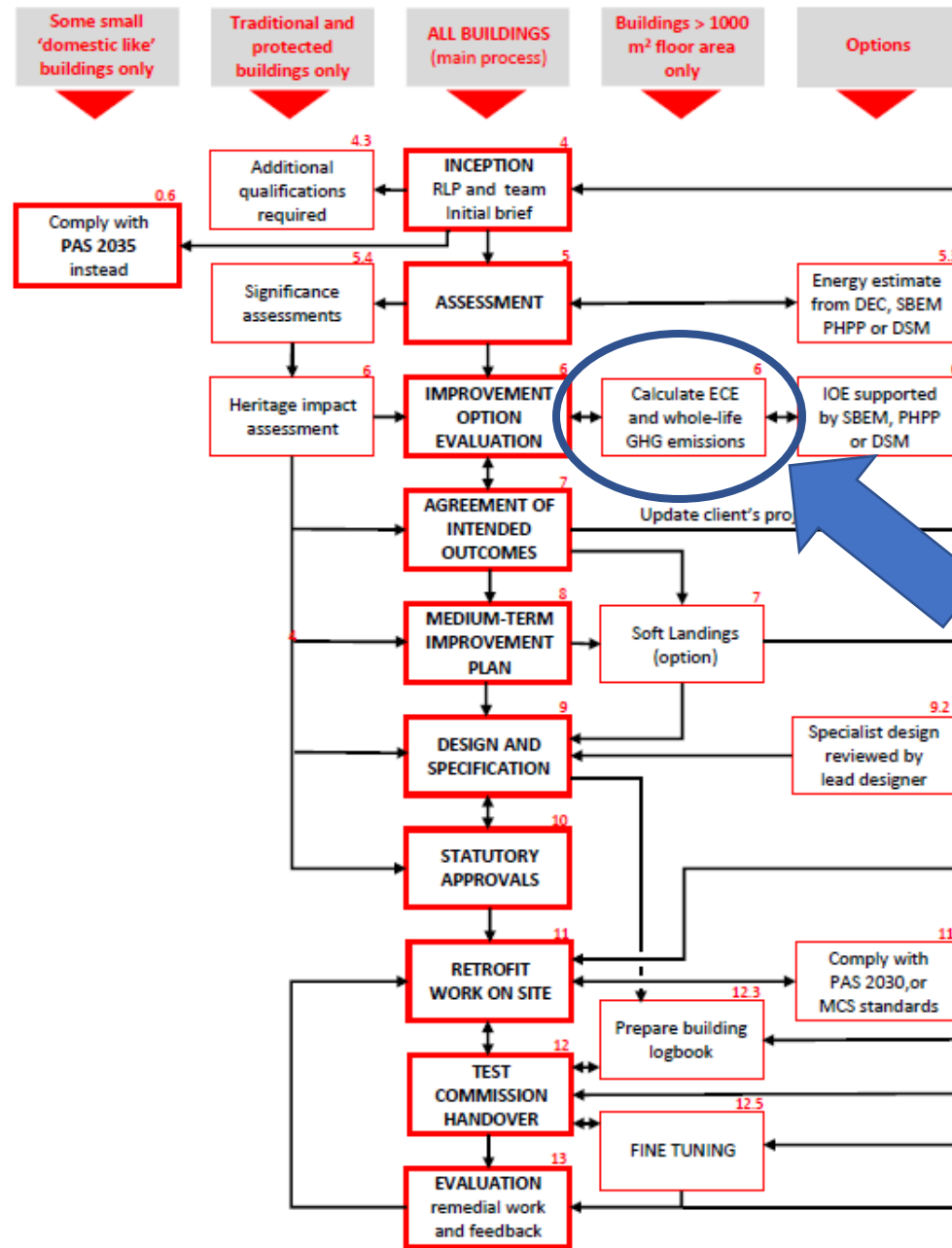


# PAS 2038 non-domestic retrofit



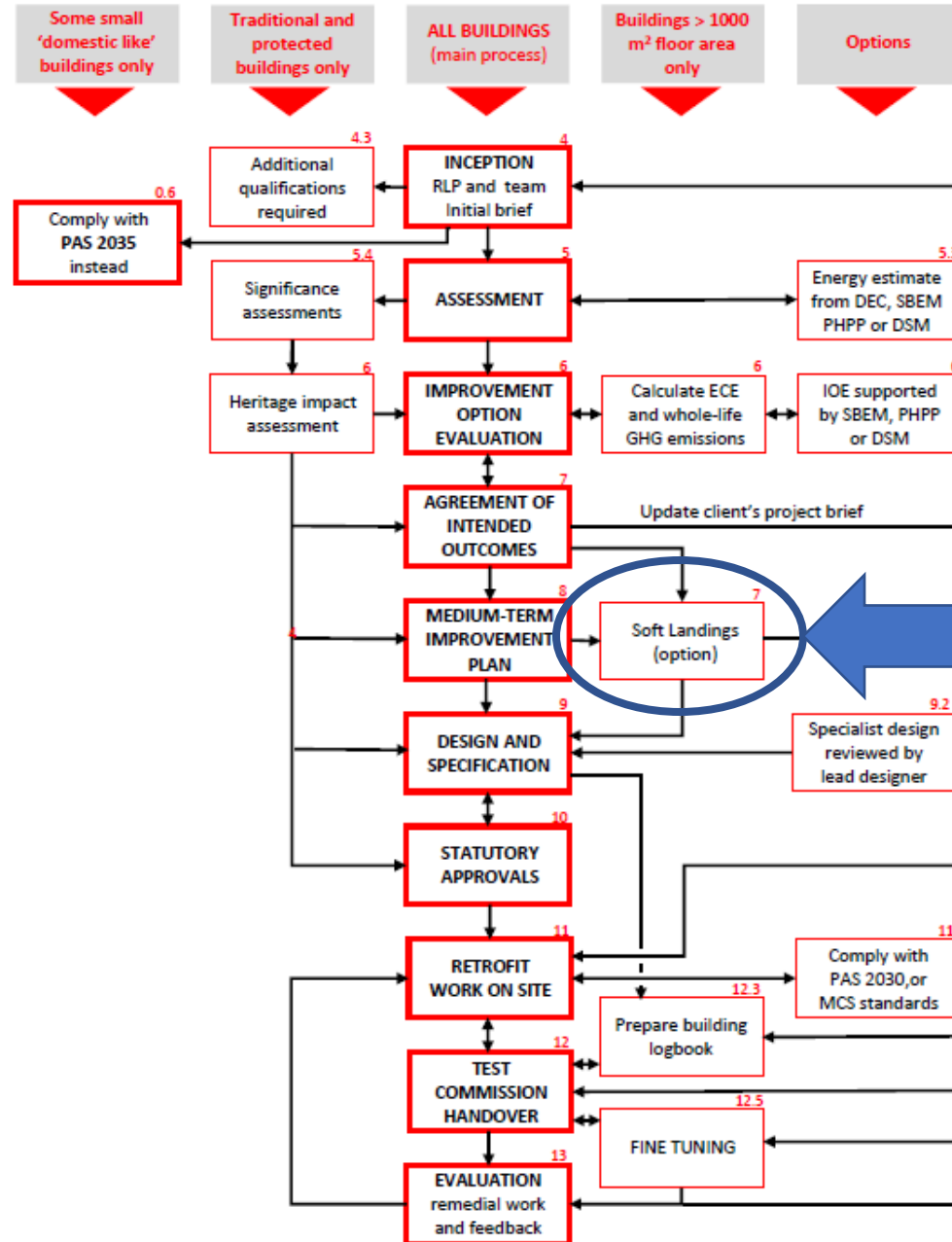
Several options for estimating energy use and improvement option evaluation

# PAS 2038 non-domestic retrofit



Calculation of whole life GHG emissions for buildings > 1000 m<sup>2</sup>

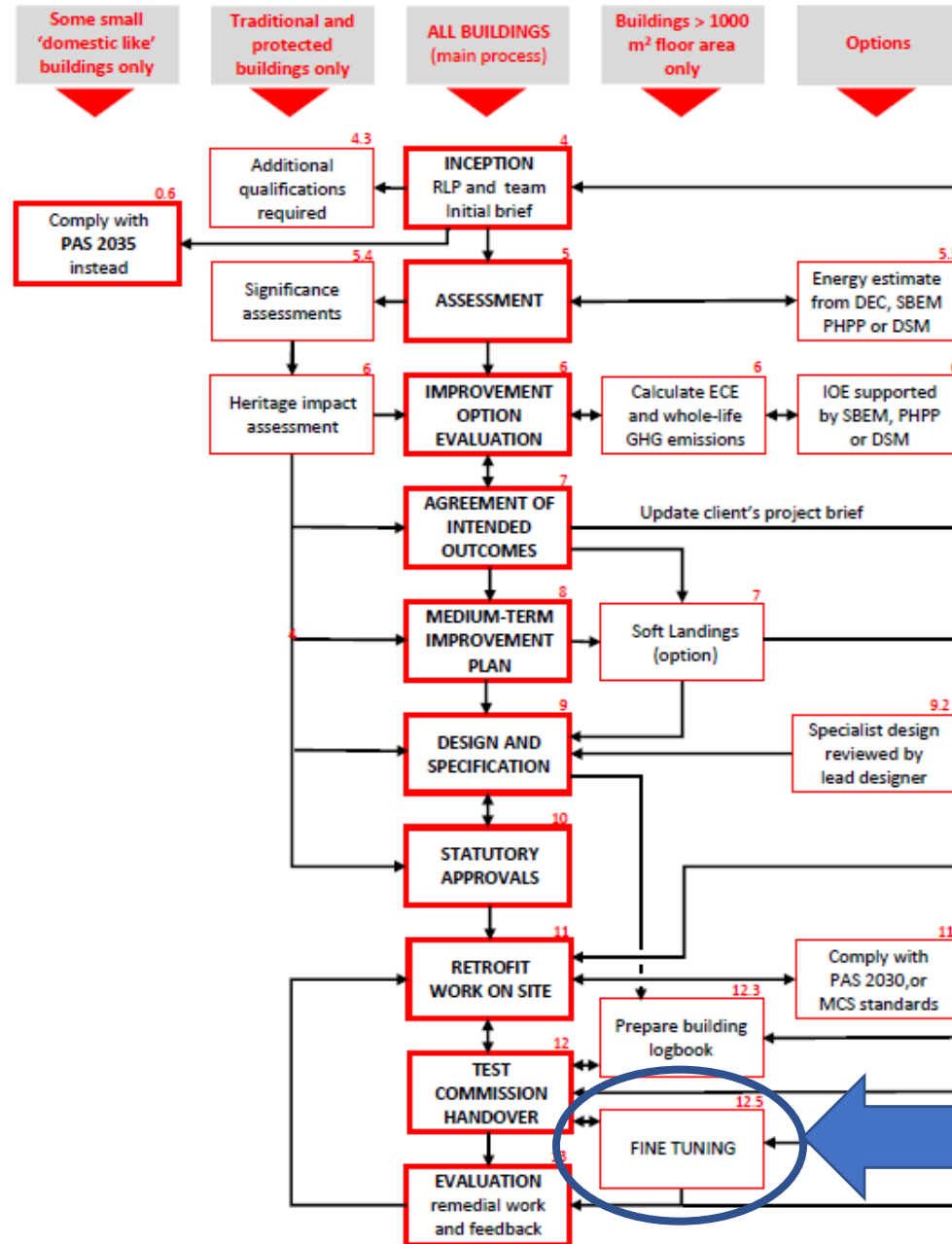
# PAS 2038 non-domestic retrofit



Soft Landings option for buildings > 1000 m<sup>2</sup>

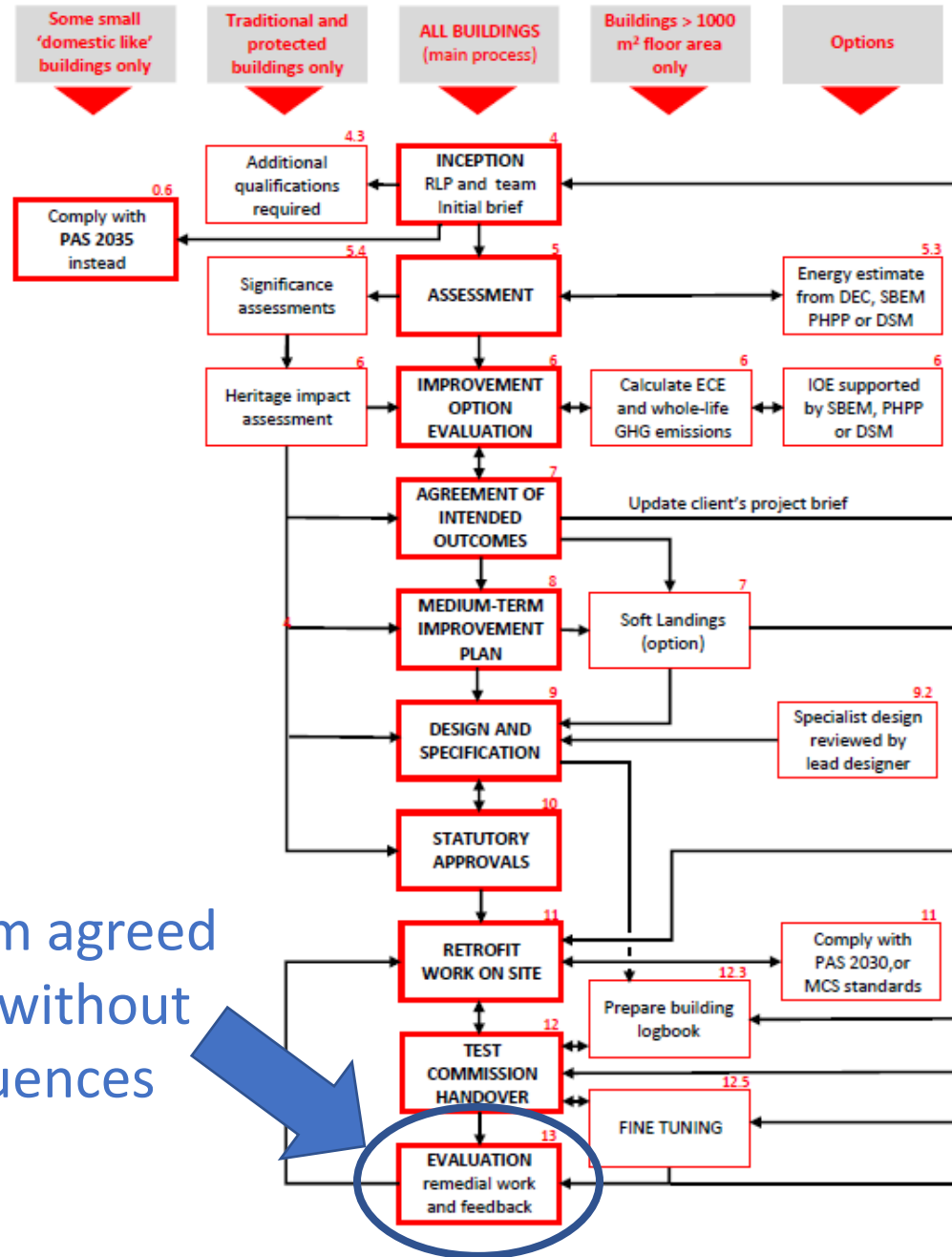


# PAS 2038 non-domestic retrofit



Post handover fine-tuning of buildings > 1000 m<sup>2</sup>

# PAS 2038 non-domestic retrofit



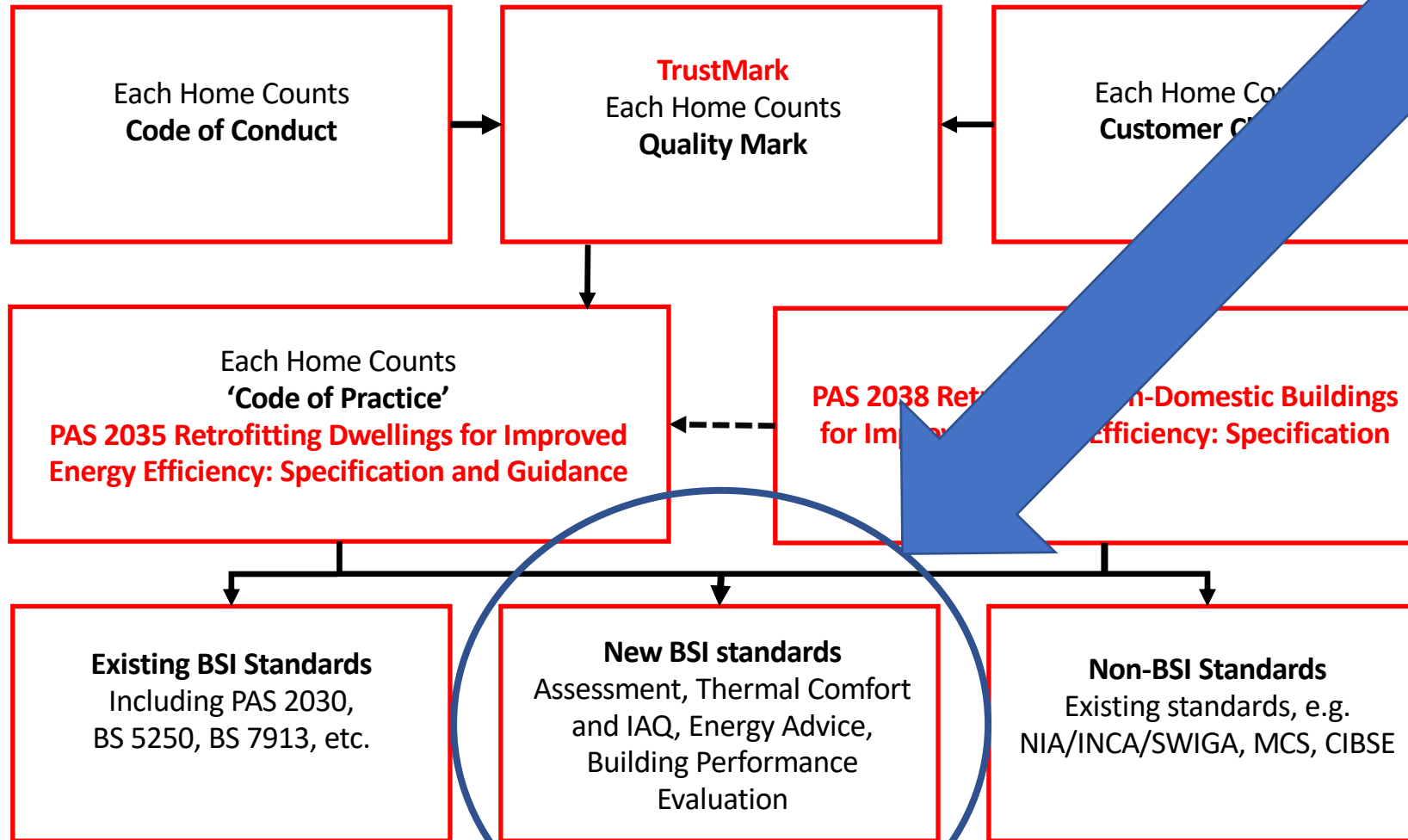
Evaluation to confirm agreed outcomes achieved without unintended consequences

# PAS 2038 Summary

- Covers all non-domestic buildings
  - Multiple options to deal with scale and complexity
- Similar process to PAS 2035 but no risk paths
  - Assessment
  - Improvement option evaluation
  - Medium-term improvement plan
  - Design and specification
  - Installation
  - Commissioning, testing and handover
  - Evaluation
- Options for larger buildings
  - Design for Performance, Soft Landings, Fine Tuning

# And finally ... watch this space

More to come from the RSTG



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