

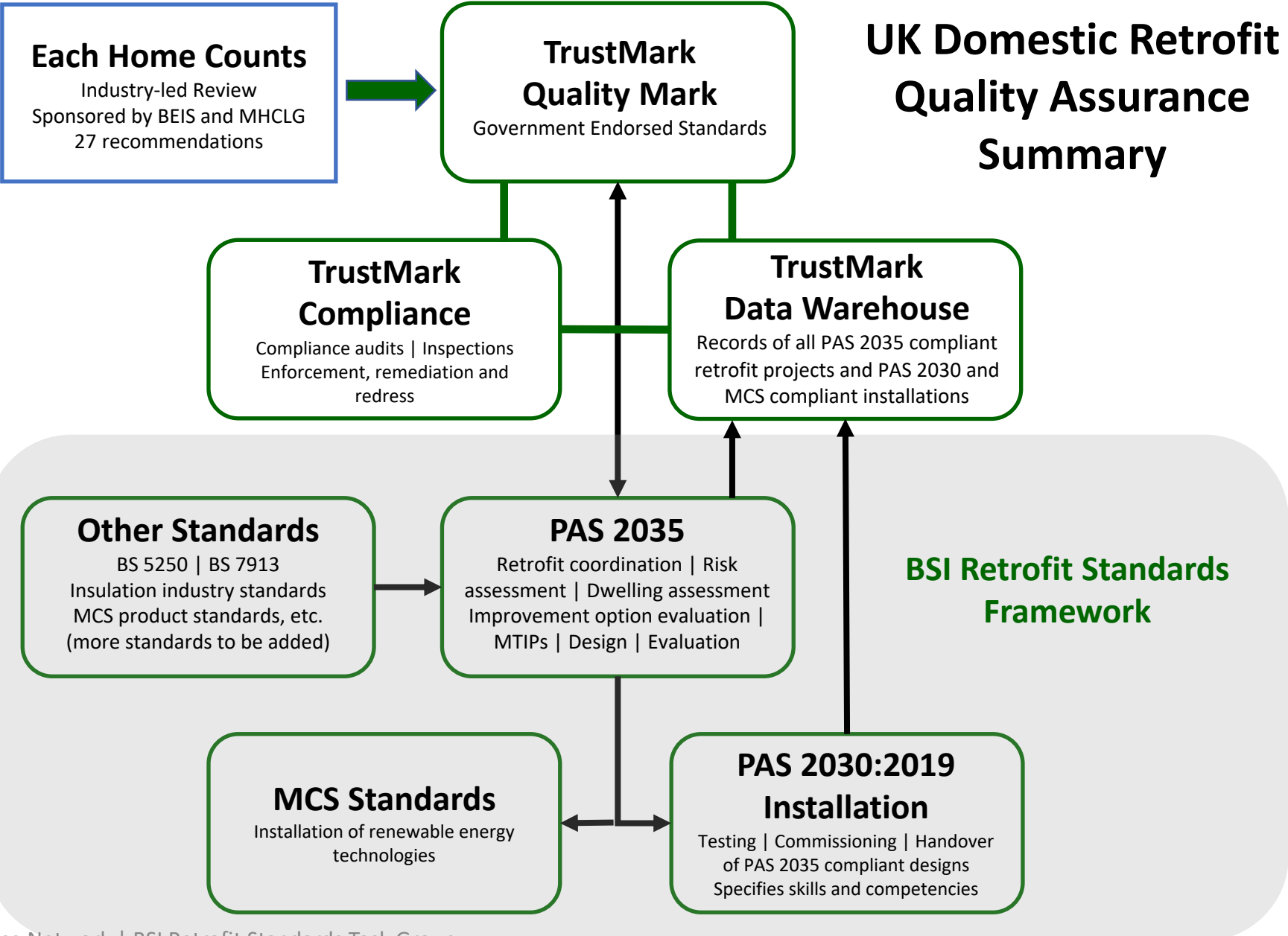
Retrofit Standards and BPE

Dr Peter Rickaby

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

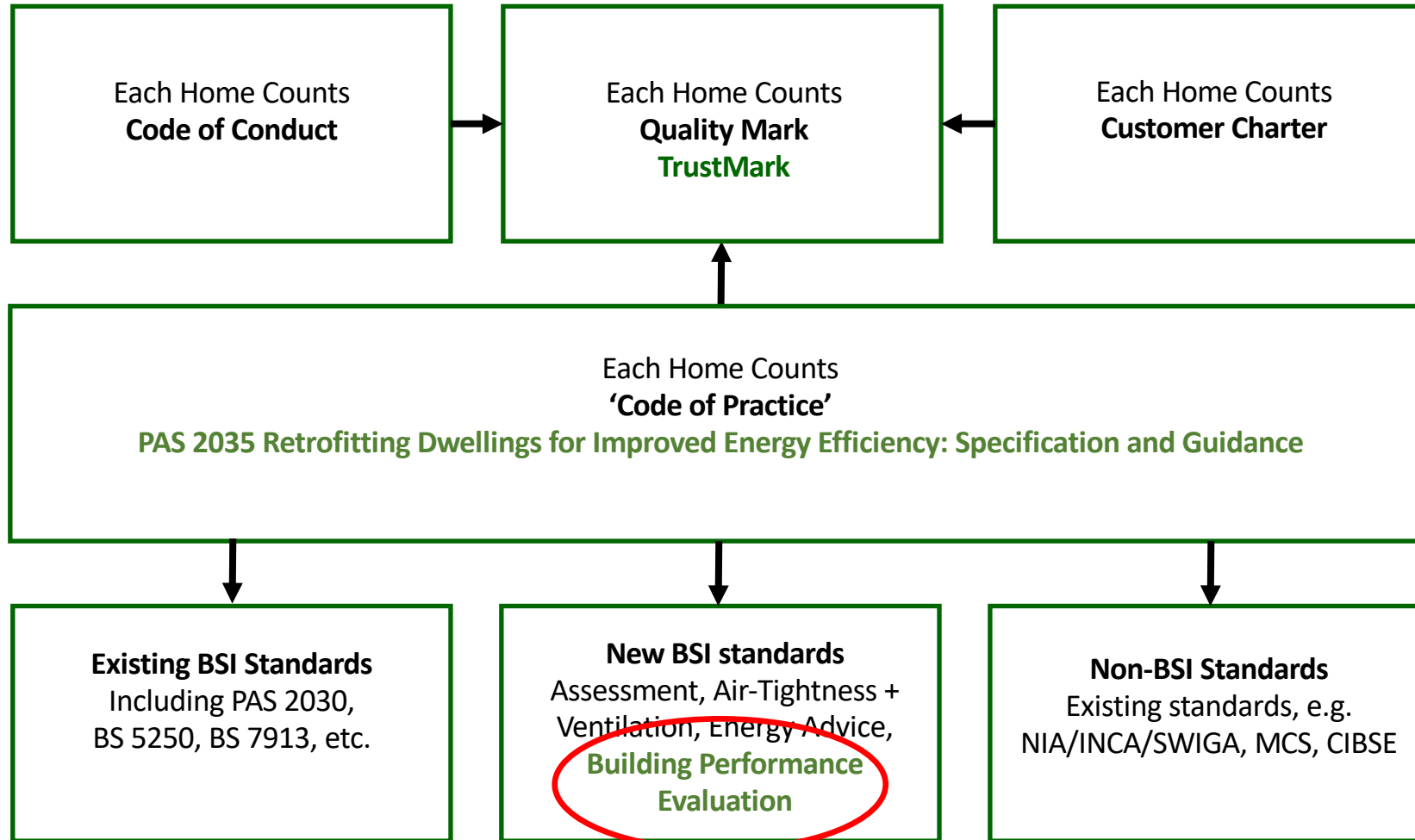
- The UK domestic retrofit quality assurance system
- The BSI Retrofit Standards Framework
 - Including the addition of PAS 2038 covering non-domestic retrofit
- The purpose of evaluation in the PAS 2035 and PAS 2038
- How the evaluation requirements are structured in both standards

UK Domestic Retrofit Quality Assurance Summary



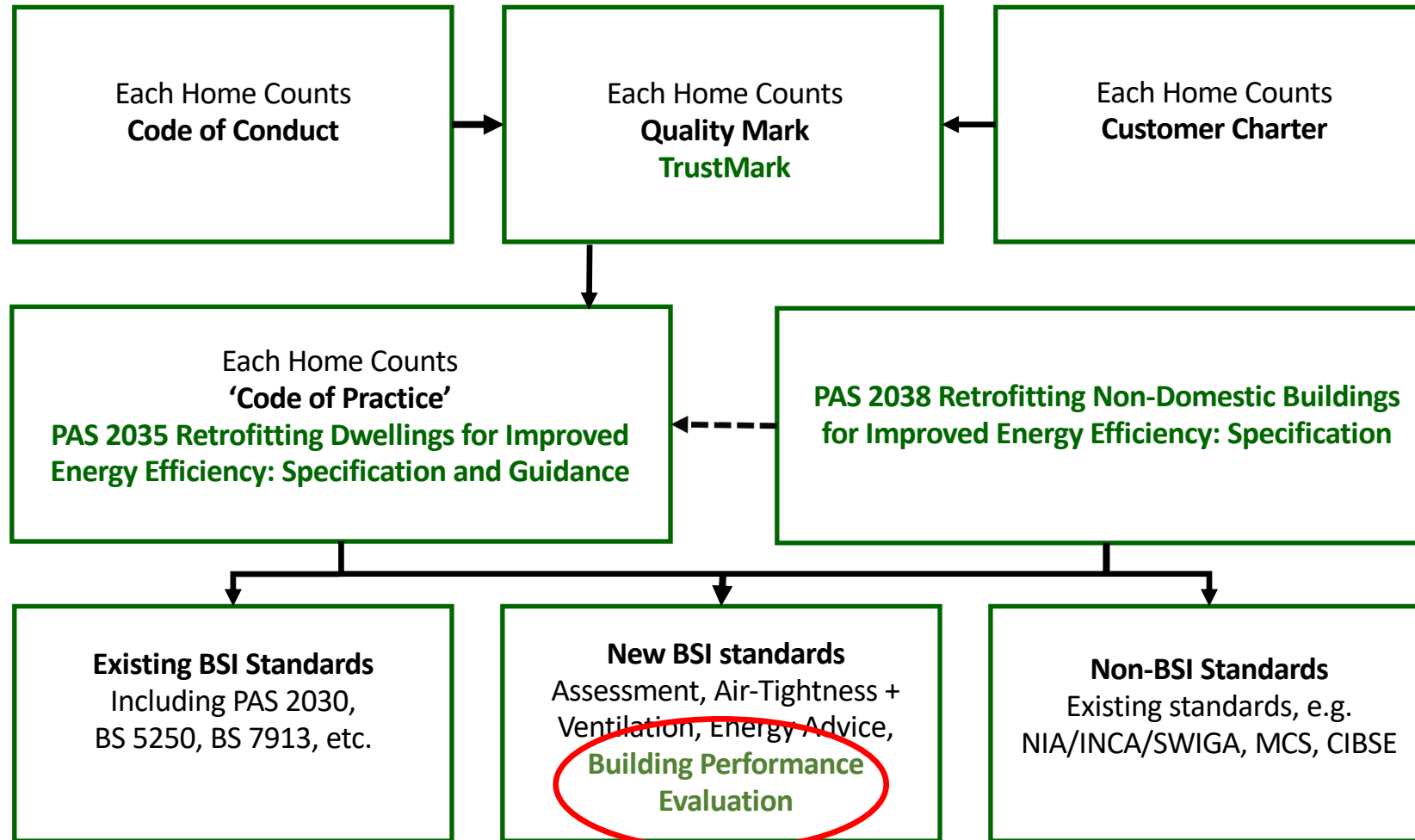
Retrofit Standards

The BSI Retrofit Standards Framework

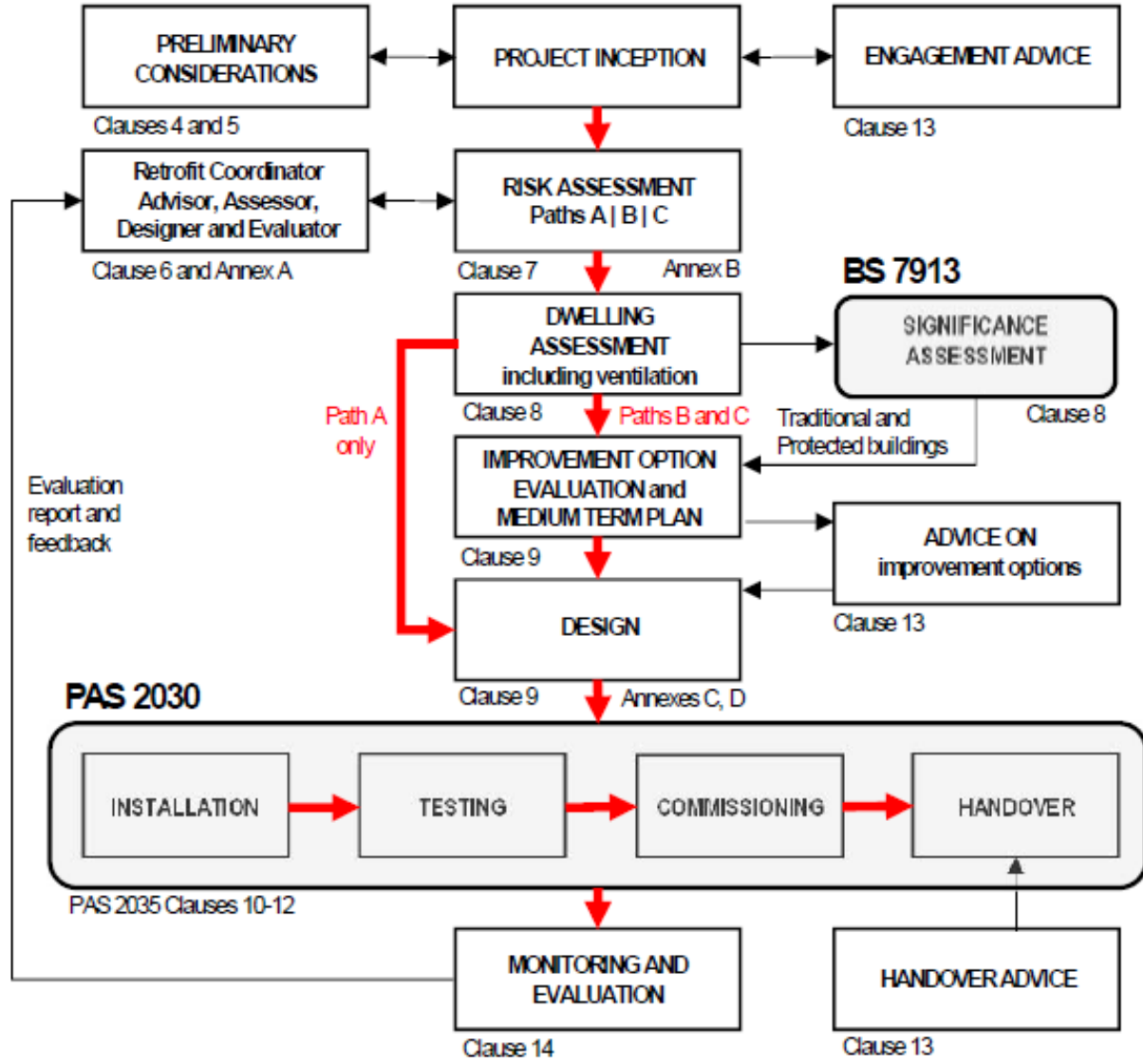


Retrofit Standards

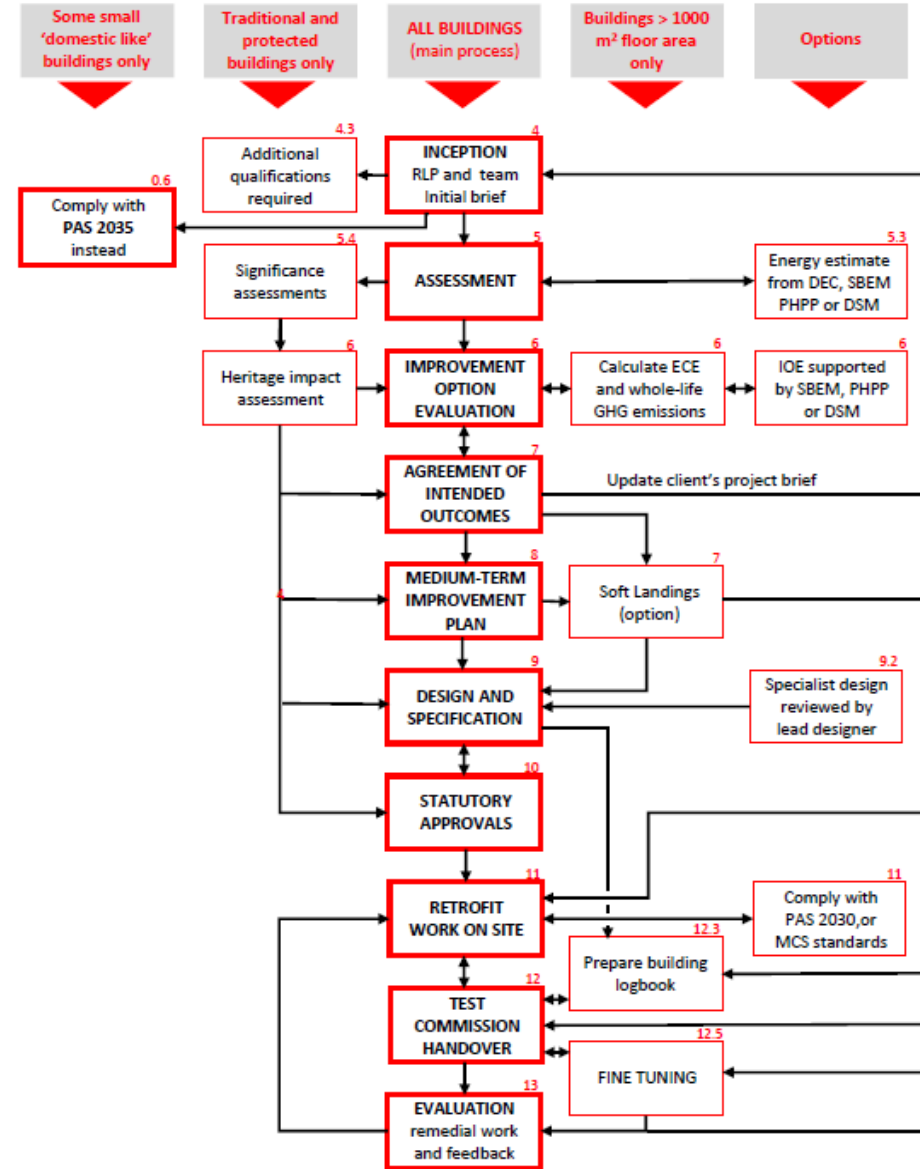
The BSI Retrofit Standards Framework



PAS 2035 – domestic retrofit



PAS 2038 – non-domestic retrofit



The Purpose of Evaluation

PAS 2035

The Retrofit Coordinator shall ensure that every retrofit project is subject to monitoring and evaluation to determine whether the intended outcomes of the retrofit project have been realized, and to identify and learn from any project-specific or systematic problems with the retrofit risk assessment, the dwelling assessment, the retrofit design, the installation of EEMs or the testing, commissioning or handover of EEMs.

NOTE A new British Standard is proposed for Building Performance Evaluation, covering domestic retrofit projects. On publication, the new standard may supersede the guidance in 14.2 to 14.6 below. Prior to publication of the new standard, 14.2 to 14.6 should apply to all domestic retrofit projects.

PAS 2038

Every retrofit project shall be evaluated to determine how well the installed measures are working. The purpose of the evaluation shall be to:

- determine the extent to which the intended outcomes of the project have been realized;
- identify any unintended consequences (good or bad) that have become apparent;
- specify any necessary remedial work; and
- learn from any problems, insights and surprises (pleasant or unpleasant) about the building assessment, the improvement option evaluation, the retrofit design, the installation of energy efficiency measures or the testing, commissioning or handover of the installed measures.

NOTE Some clients might require more extensive evaluation, including long-term or permanent monitoring of the performance of the retrofitted building.

In both cases, the evaluation is checking that the PAS process has worked, not necessarily the energy performance of the building

Evaluation in PAS 2035

- Three escalatory levels:
 - Basic (questionnaire)
 - Within 3 months
 - Intermediate
 - Within +6 months
 - Advanced
 - Within +2 years
- The escalating evaluation levels are intended to be a deterrent!
- Why don't we do proper BPE?
 - Because the margins in current measures-based domestic retrofit are insufficient to support it

Evaluation in PAS 2038

- Two levels
 - Basic (questionnaire)
 - Within 15 months after occupation or 1 month after completion of fine-tuning (whichever is later)
 - BUS methodology recommended
 - Further (detailed investigation)
 - Usually within 3 years after 75% occupation is reached
 - Includes post construction review, post occupancy evaluation, technical surveys (e.g. thermography), energy use monitoring, etc, as appropriate

Conclusions

- The purpose of ‘evaluation’ in both PASs is to
 - Confirm that intended outcomes have been achieved
 - Intended outcomes do not necessarily include specified energy performance
 - Identify any unintended consequences
 - Investigate and rectify reported problems
- In PAS 2035 funding and timescales for evaluation are limited
 - But the PAS does not preclude more detailed evaluation if appropriate
- In PAS 2038, more detailed evaluation may be required
 - Evaluation is assumed to be funded via the project budget
- In both PASs there is scope for replacement of the evaluation clauses with the relevant clauses of the forthcoming BPE standard, in future

Questions?

Retrofit Standards and BPE

Dr Peter Rickaby

Chair, BSI Retrofit Standards Task Group
Technical Director, The Retrofit Academy
UK Centre for Moisture in Buildings, UCL
peterrickabyconsultancy@gmail.com