

# The use of EPCs in MEES and the Whole House Approach to Retrofit

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#### The Sustainable Traditional Buildings Alliance

#### Energy, Heath and Heritage



#### Should EPCs be used in MEES?

- Inaccuracies in EPCs
- Challenges for older & rural buildings
- EPCs only look at energy use. They miss:
  - Condition
  - Health -> Moisture, indoor air quality
  - Heritage -> Significance
- The use of EPCs as design tools

#### Is there a better approach?

- A Whole House Approach
- STBA scoping study, published this year
  - 35 pages: origins, uses, issues, solutions
  - Sponsored by our key Patrons National Trust and Historic England
- Developing templates for Whole House Survey, and training for surveyors.





#### What EPCs are:

Indication <u>costs</u> of energy (not energy use) under standardised conditions.

'The EPC rating shown here is based on standard assumptions about occupancy and energy use and may not reflect how energy is consumed by individual occupants'

i.e. they do not reflect energy performance, it's just an estimate.

... so the name is wrong ...



#### PREVIEW Government **Energy Performance Certificate** Dwelling type: Semi-detached house Reference number: 0000-0000-0000-0000-0000 RdSAP, existing dwelling Date of assessment: 20 March 2018 Type of assessment: Date of certificate: 20 March 2018 Total floor area: 82 m<sup>2</sup> Use this document to · Compare current ratings of properties to see which properties are more energy efficient Find out how you can save energy and money by installing improvement measures Estimated energy costs of dwelling for 3 years: £ 3.501 Over 3 years you could save £ 1,983 Estimated energy costs of this home Current costs Potential costs Potential future savings £ 255 over 3 years Liahtina £ 171 over 3 years Heating £ 2,898 over 3 years £ 966 over 3 years You could Hot Water £ 348 over 3 years £ 381 over 3 years save £ 1,983 Totals £ 3,501 over 3 years £ 1,518

These figures show how much the average household would spend in this property for heating, lighting and hot water and is not based on energy used by individual households. This excludes energy use for running appliances like TVs, computers and cookers, and electricity generated by microgeneration.



The graph shows the current energy efficiency of your home.

The higher the rating the lower your fuel bills are likely to be.

The potential rating shows the effect of undertaking the recommendations on page 3.

The average energy efficiency rating for a dwelling in England and Wales is band D (rating 60).

The EPC rating shown here is based on standard assumptions about occupancy and energy use and may not reflect how energy is consumed by individual occupants.

Top actions y	you can take to save mone	y and make your	home more efficient
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Recommended measures	Indicative cost	Typical savings over 3 years
1 Internal or external wall insulation	£4,000 - £14,000	£ 1,170
2 Floor insulation (solid floor)	£4,000 - £6,000	£ 117
3 Draught proofing	£80 - £120	£ 57

See page 3 for a full list of recommendations for this property

To find out more about the recommended measures and other actions you could take today to save money, visit www.gov.uk/energy-grants-calculator or call 0300 123 1234 (standard national rate). The Green Deal may enable you t make your home warmer and cheaper to run.



#### What they are NOT . . .

... a robust energy, building or retrofit survey

The EU's own report on the EPBD (CA EPBD 2016) states:

"The detailed energy audit is not regarded as part of the EPC scheme, but as a necessary next step after having completed the EPC. This distinction is necessary for clients' acceptance:

an EPC cannot substitute for detailed refurbishment planning, nor has it been designed to do so."



#### Background & origins

- 2002: EU Energy Performance of Buildings Directive (EPBD), Article 7
  - Inspired by Kyoto Protocol, i.e. GHGs
- 2007: EPC included in Home Information Pack
  - Requirement initially limited to 4+ bed properties
- 2010: HIP withdrawn, EPC retained & requirement extended to all dwellings
- 2010: EPBD recast, required EPC to be included in sale / rental advertising
- Contents (& exemptions) dictated by Energy Performance of Buildings (England & Wales) Regulations 2012



#### Purpose / How they are now used

- Environmental: addressing climate change (Kyoto / EPBD)
- Commercial / Financial: 'The ultimate goal of EPCs is to create a demanddriven market for energy efficiency in the building sector' \*
- Information source: for owners & occupants
- Policy: increasing use in Government energy efficiency programmes, e.g. Green Deal, ECO2, FiT, RHI
- Enforcement: increasingly being used for minimum standards, e.g. MEES

The last 2 are critical as the recommendations come into play



#### **Current UK Policy Context**

- Each Home Counts Report
  - Recommends a Whole House Approach to retrofit
- PAS2035 (the new standard for retrofit due 01/02/19)
  - Mandates consideration of heritage, moisture, ventilation
- Building Regulations
  - Covers water efficiency, sustainable drainage, accessibility, safety
  - Contains exemptions for buildings of traditional construction in Part L
- Wales: Wellbeing of Future Generations Act
  - Puts people at the centre of the sustainability agenda
- Clean Growth Strategy
  - Suggests targets for achieving EPC scores by 2030 and 2035.

The first 4 of these require a broader approach to retrofit.

An approach with multiple objectives (and metrics).



#### PAS2035

#### **Objectives**

- Improved functionality, usability & durability of buildings
- Improved comfort, health & wellbeing of building occupants
- Improved energy efficiency
- Reduced environmental impacts
- Protection & enhancement of architectural / cultural heritage
- Avoidance of unintended consequences

PAS 2035 is a major development as it is the first time a UK energy standard has required consideration of factors other than emissions from buildings in use



## A Whole House Approach







#### A Whole House Approach

- Considers all aspects of a building's fabric and services
- Considers interactions with the occupants
- Assesses significance and the potential impact of retrofit
- Assesses moisture levels and the potential impact of retrofit
- Assesses ventilation and the potential impact of retrofit

#### EHC Recommendation 17:

"all retrofit projects will have an appropriate design stage which takes a holistic approach and adequately considers the home, its local environment, heritage, occpuancy... when determining suitable measures."



#### **Key questions**

- 1. How can EPCs be improved ?
- 2. How much can they be improved while retaining their basic function?
- 3. How much can they inform a Whole House design approach?

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#### 1. Short term opportunities for improving EPCs BUILDINGS ALLIANCE

#### A) Wording & Structure

- Renaming of the Energy Efficiency Rating (Energy Cost Indicator?)
- Give text on assumptions more prominence
- Remove much extraneous text
- Show all figures as annual
- Increase prominence of Environmental Impact Rating
- For low-scoring properties, include summary of likely reasons
- Add explicit text to recommendations
  - Suitability of measures for particular building types
  - General 'maintenance first' principle
  - Possible need for increased ventilation provision
  - Benefits of related measures not shown in list
- Give Addenda notes more prominence

### 1. Short term opportunities for improving EPCs BUILDINGS ALLIANCE

#### **B) Advisory Notes**

- Allow assessors to note:
  - High exposure outside exposure zones map
  - Evident maintenance issues
  - Where a property is of traditional construction / may have significance & therefore require a different approach (cf. BR L1B)
- Develop standardised text for these areas
- Develop standardised text to appear where EWI or IWI are recommended (as for CWI)

C) Heating system databases – expand to include all models plus biomass

D) Listed buildings & Conservation Areas – clarify position beyond doubt

## **2. Long term opportunities for improving EPCs** BUILDINGS ALLIANCE

- Rename EPC
- Develop an insulation database
- Develop ventilation database (already exists within SAP)
- Review focus of EPC
- Develop improved assessment process
  - E.g. access to property documentation
  - E.g. option to provide or source further evidence
- Develop enhanced training courses for DEAs (or link into existing)

These changes would make EPC process more consistent with the Whole House approach

## 3. Alignment with the Whole House approach BUILDINGS ALLIANCE

**EPCs...** have the potential to serve as a useful part of a Whole House assessment, <u>but cannot deliver it</u>.

- They contain some of the basic data on areas and construction.
- They have nothing on condition, moisture, ventilation, context, significance

#### A Whole House Approach

- Will ensure that each building becomes as sustainable as it can be;
- Will ensure that retrofit avoids unintended consequences;
- Can deliver a wide range of co-benefits to the local economy, to the environment, and to residents.



STRA



#### The impact of Brexit

#### **Option A**

Adopt or exceed EU and existing UK targets and policies to achieve EPC scores for target building groups.

#### (Note MEES in Scotland)







#### **Option B**

Recognise failures of the narrow approach

Take the opportunity to review the sustainability agenda, targets <u>and</u> EPCs

Be consistent with EHC and PAS2035

Achieve a wide range of goals through retrofit



#### **EPCs elsewhere in Europe**

- Interpretation of EPBD varies
  - i.e. There is scope for change even within EU legislation adopted
- Most focus more on the environmental rating (EIR)
  - UK focuses on energy efficiency (EER) ...
  - ... which is actually an <u>energy cost</u> indicator
- Calculation methodology varies
  - Outdoor climate / internal loads / passive solar gain / local solar exposure / building position / natural & mechanical ventilation ...
- Most cost significantly more to produce
  - Would the UK market bear this?



#### Thank you for listening

"EPCs and the Whole House Approach" can be downloaded at:

<u>http://files.site-</u> <u>fusion.co.uk/e8/8e/e88ebac9-</u> <u>50d6-4710-8fea-</u> <u>0d39e46bcadd.pdf</u>



#### EPCs and the Whole House Approach: A scoping study

#### 28th May 2018

This report has been prepared by the Sustainable Traditional Buildings Alliance (STBA) on behalf of Historic England and the National Trust, in response to the growing use of Energy Performance Certificates (EPCs) in UK Energy Policy. It provides an overview of the key issues, constraints and opportunities surrounding EPCs, identifying ways in which they could be better aligned with the 'whole-house' approach to retrofit developed by the STBA and recommended in the Each Home Counts report.





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