The impact of MEES in the rental sector

SBTA / Fit for the future, 26 November, 2018

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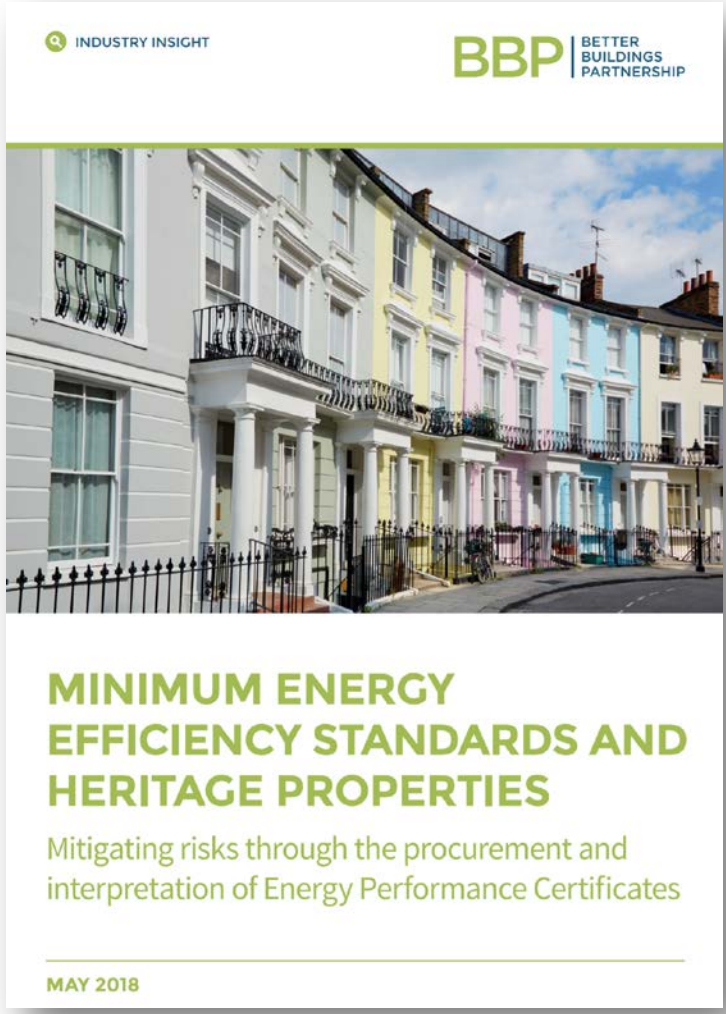


Industry Insight freely available to download

sturgis carbon profiling

BBP BETTER BUILDINGS PARTNERSHIP

betterbuildingspartnership.co.uk/mees-and-heritage-properties

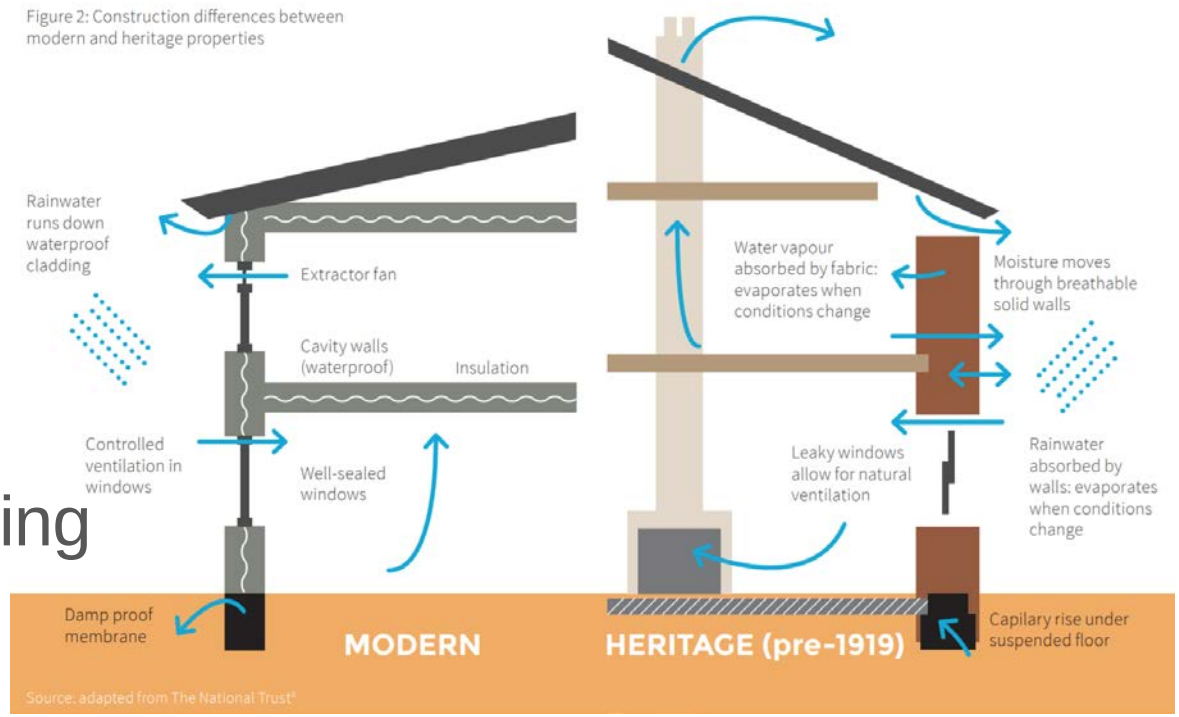
Who is it for?

What is the challenge?

- Heritage properties represent a significant proportion of the UK's building stock.
  - Estimate 25% buildings pre-1919
- Becoming increasingly at odds with environmental legislation – exemplified by MEES.
- Studies have indicated the historic properties are typically the worst performing in terms of EPC ratings.
- Heritage properties are significantly at risk and will require improvement works to meet regulations.
- Climate adaptation and 'future proofing'.

Risks for commercial owners of heritage properties

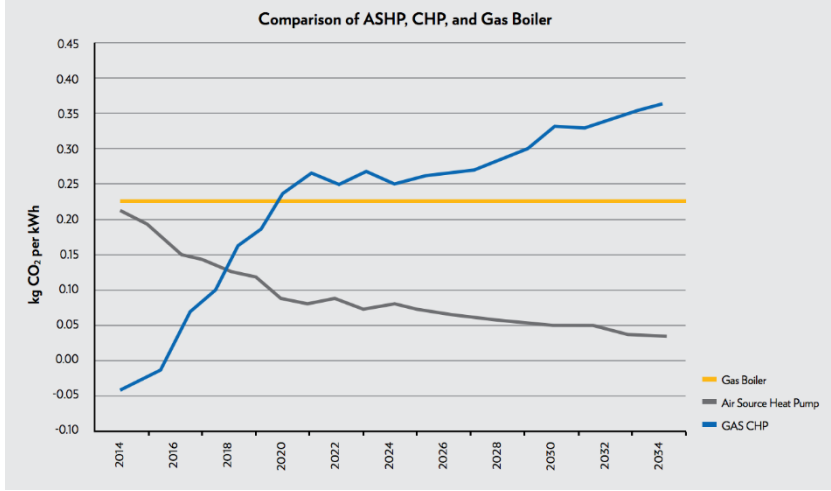
- Lack of information leads to poor quality EPCs.
- Regulations and EPC methodology do not fully recognise traditional characteristics.
- Recommendations are untailored & potentially detrimental.
- No bespoke government approved certification/training for assessors.

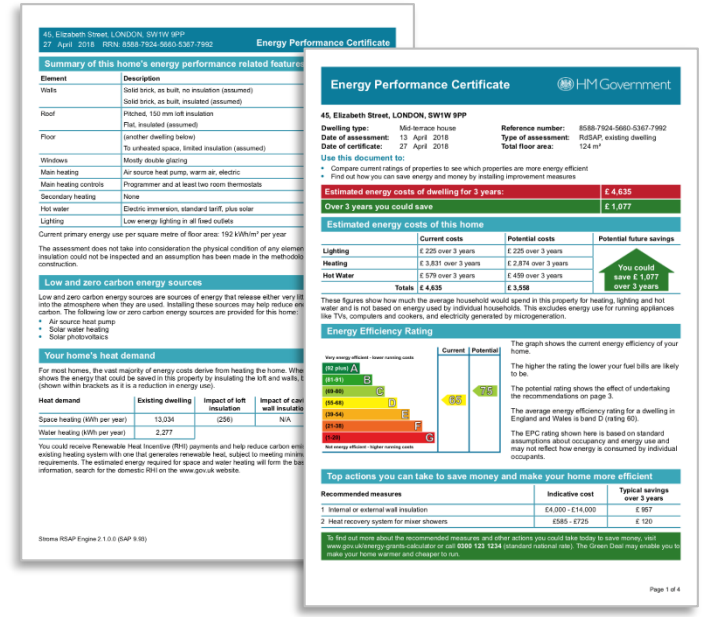


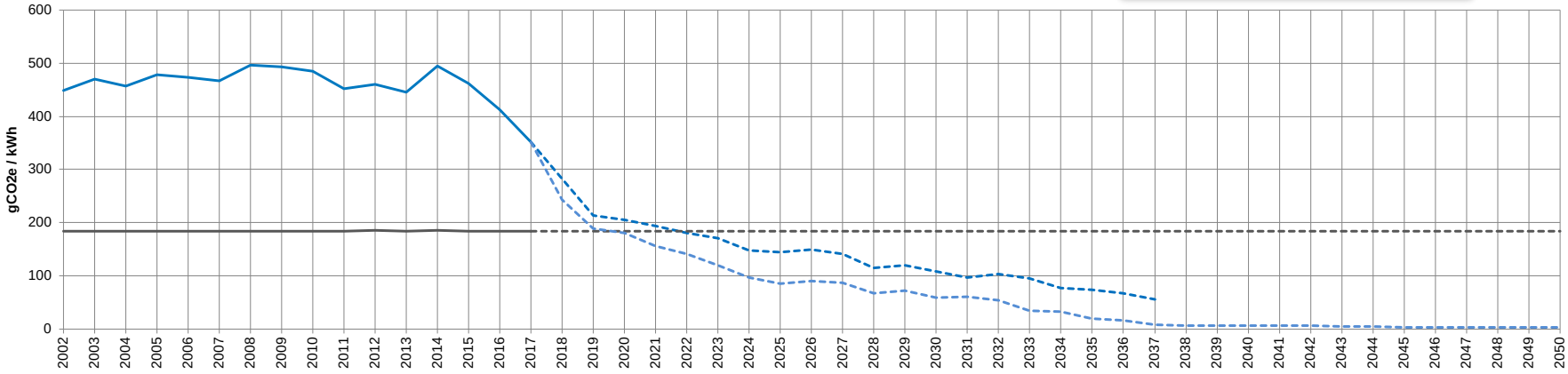
MEES in practice

45 Elizabeth Street

- Electricity ‘penalty’







* **2-year interpolation required due to the delay of GHG reporting factors to adopt actual electricity footprint**

Source: Simon Feraday (BIES) - Email 9th January 2018

Electricity use 'penalty'

44A Pimlico Road, London

	Current Property	Option A	Option B	Option C	Option D	Option E
Retrofit Measure		**Measure:** - New gas condensing combination boiler, minimum efficiency: 90% - Temperature controls: programmer, room thermostat and TRVs in all radiators	**Measure:** - High retention storage heaters (Quantum series) - Temperature controls for high retention heaters - New insulated dual immersion hot water cylinder with dedicated thermostat - Meter connection to dual electricity tariff (Economy 7 tariff)	**Measure:** - High efficient electrical ASHP to provide heating and cooling, connected to existing radiators. Ensure MCS certificate is available - Temperature controls: programmer, room thermostat and TRVs in all radiators - New insulated dual immersion hot water cylinder with dedicated thermostat - Meter connection to dual electricity tariff (Economy 7 tariff)	**Measure:** - Domestic wet central heating system with direct action electric boiler. At least 90% efficiency. - Temperature controls: programmer, room thermostat and TRVs in all radiators - New insulated dual immersion hot water cylinder with dedicated thermostat - Meter connection to dual electricity tariff (Economy 7 tariff)	**Measure:** - High efficiency, directed flow, highly radiant electric panel heaters - Temperature controls: At least two room thermostats - New insulated dual immersion hot water cylinder with dedicated thermostat - Meter connection to dual electricity tariff (Economy 7 tariff)
EPC Rating Achieved	**B 81**	**B 83**	**B 84**	**C 78**	**C 80**	**D 63**
DER	18.15 $KgCO_2/m^2yr$	14.95 $KgCO_2/m^2yr$	25.99 $KgCO_2/m^2yr$	23.59 $KgCO_2/m^2yr$	26.70 $KgCO_2/m^2yr$	39.18 $KgCO_2/m^2yr$
Carbon Performance		CO_2 reduction **-247** $KgCO_2/yr$	CO_2 increase **603** $KgCO_2/yr$	CO_2 increase **418** $KgCO_2/yr$	CO_2 increase **658** $KgCO_2/yr$	CO_2 increase **1,618** $KgCO_2/yr$
		18%	-43%	-30%	-47%	-116%

Compliance gap in shell & core retrofit

- Second fit-out EPCs most likely will fall under E rating.
- Units with ratings below E are not legally let-able.

- Units with low EPC ratings are not attractive in the market. However, the rating doesn't reflect reality.
- Works are required to upgrade the EPC. Most likely these works will be obsolete.
- An EPC after tenant fit-out is not required by law.

Recommendations

Get to know your property

Collating as much information as possible regarding the fabric, roof and systems will provide energy assessors and consultants with the evidence required for them to deliver an accurate and high-quality EPC.

Key Parameters Affecting EPCs

Key input	Notes	Impact on the EPC rating	Evidence collected by assessors	Supporting activities/documents that can be provided by owners
Access	Inspect all the spaces inside the property and collect the required photographic evidence. Surveying all the spaces/rooms enables assessors to choose the most suitable model inputs and avoid using the worst-case energy scenarios.	**High**	– Walk through of the property – Identify the construction type, building services and lighting systems found in each room/ zone – Take relevant photographs	– Ensure that all the rooms (including plant rooms, cupboards, loft spaces) are accessible – Communicate with the assessor before the survey and determine the scope of the site survey in advance – Site Plans / Building Survey
Building age	Default values and design assumptions are based on the age of the building.	**High**	– No evidence required	– Age of construction, if known – Details of any retrofitting works carried out (including extensions and alterations)
Building Services Systems	Buildings services systems such as space heating systems, hot water, cooling or mechanical ventilation play the most important role in determining the EPC rating of a property. Inefficient and poorly maintained building systems can significantly increase the energy consumption and cause damage to the property.	**High**	– Identify the brand and model of heating and hot water systems – Photos and manufacturer details	– If available, as-built drawings and manufacturer details of space heating, cooling and hot water systems can be shared with the assessor. Sources may include an asset register for the property or previous M&E survey
Wall, roof and ground floor build-up	Insulating the external building elements can reduce the heat losses resulting in significant energy savings. To be able to reflect the positive impact of insulation in the energy rating, relevant documentation is required.	**High**	– Photos, invoices and U-Value calculations	– Building Survey – Insulation type and thickness – Photographic evidence – U-value calculations carried by accredited professionals – Invoices of insulation purchased – As-build drawings with the location of insulation and details of the build-up
Source of energy	The assessor is required to indicate if gas is available in the property. Electricity is 2.5 times more carbon intensive than gas (subject to grid decarbonisation).	**High**	– Inspect and provide evidence of gas meters	– Indicate if gas connections are not available in the property

Select an energy assessor with experience of heritage properties

- Knowledge & experience of heritage properties.
- Experience of producing EPCs.
- Ability to outline a bespoke approach that addresses limitations within the EPC methodology when assessing heritage properties.

Review the EPC carefully

Before committing to any improvement works, assess the quality of the EPC by checking that key information is correct.

Key EPC Review Criteria

- Property details: e.g. address, floor area, location in the building.
- Main heating fuel identified.
- Main building characteristics: e.g. wall type, windows, roof, etc.
- All improvements and changes carried out since the building was originally built have been included: e.g. additional insulation.
- The software model used.
- Level of default values.

Select appropriate improvement measures

MAINTENANCE ACTIVITIES

- External walls
- Roof
- Ground floor & basement
- Mechanical ventilation
- Fans
- BMS
- Boilers
- Fireplace

LOW COST, NON-INTRUSIVE WORKS

- Energy efficiency lighting
- Lighting controls
- Control systems
- Draught-proofing

BUILDING SERVICES SYSTEMS

- Boilers
- Heat pumps
- Fans
- Chillers
- TVRs
- Domestic hot-water
- Heat recovery

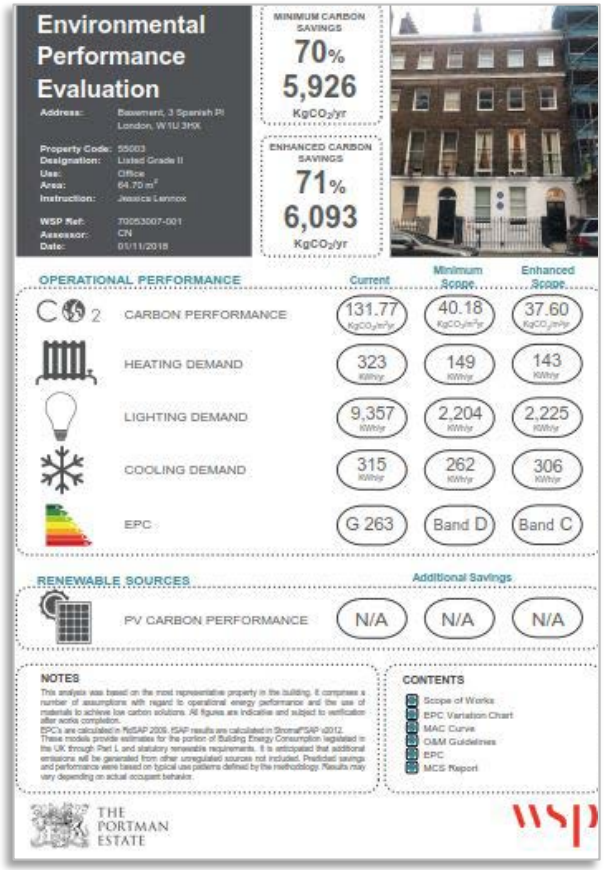
BUILDING FABRIC

- Roof insulation
- External wall insulation
- Group floor insulation
- Glazing
- Air-tightness

RENEWABLE & LOW-CARBON TECHNOLOGY

- PV
- Solar thermal
- ASHP
- GSHP

Involve your future tenants



Ska rating

GREEN LEASE LEADER

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Additional expertise and guidance

Appendix 3: EPC Recommendations and Risk Analysis for Domestic Properties

This section includes the standa
EPCs. Each measure is assessed
their likely impact on the exterio
properties, and likely structural

Recommendations for t

Element	Recomm
Roof	Loft insul
Roof	Flat roof
Roof	Room-in
External Wall	External
External wall	Internal s
External Wall	Cavity w
Floor	Floor ins
Window	Double g windows
Window	Seconda single gla
Draught proofing	Draught

Recommendations for H

Element	Recomm
Heating system	Change h
Heating system	Upgrade
Heating system	Flue gas
Heating system	New or re retention
Heating system	Replacer
Controls	Heating
Controls	Heating room the

Appendix 4: EPC Recommendations and Risk Analysis for Non-Domestic Properties

This section includes the standard measures found in non-domestic EPCs. Each measure is assessed in terms of planning limitations, their likely impact on the exterior aesthetic value of heritage properties, and likely structural and condensation risks.

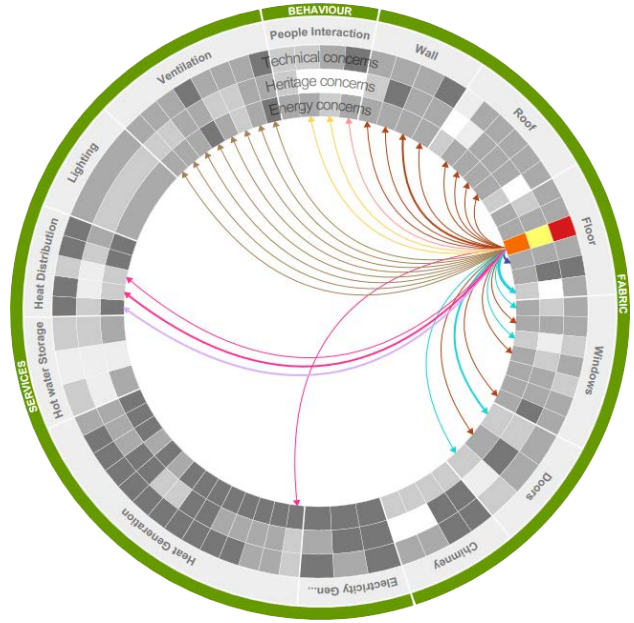
It must be noted that this risk assessment is indicative only. Before making any investment decisions or before retrofitting a heritage property, consult a technical advisor and obtain further guidance.

Recommendations for the Envelope

Element	Recommendation	Planning limitations may apply	Likely impact on aesthetic heritage	Likely structural risk	Likely condensation risk
Roof	Roof is poorly insulated. Install or improve insulation of roof.	Yes	Low	Moderate	Moderate
Roof	Some loft spaces are poorly insulated. Install or improve insulation.	Yes	Low	Moderate	Moderate
External Wall	Some walls have uninsulated cavities. Introduce cavity wall insulation.	Yes	Low	Moderate	Low
External Wall	Some solid walls are poorly insulated. Introduce or improve internal insulation.	Yes	Low	Moderate	High
Floor	Some floors are poorly insulated. Introduce and/or improve insulation. Add insulation to the exposed surfaces of floors adjacent to underground or unheated spaces.	No	Low	Low	Low
Window	Some windows have high U-values. Consider installing secondary glazing.	Yes	Low	Low	Moderate
Window	Some glazing is poorly performing. Replace/ improve glazing and/or frames.	Yes	High	Low	Moderate
Air-tightness	Carry out a pressure test. Identify and treat air leakage. Enter result in EPC calculation.	No	Low	Low	Low

STBA

SUSTAINABLE TRADITIONAL BUILDINGS ALLIANCE



…to sum up

- In complying with MEES and upgrading heritage properties commercial property owners need to understand and appreciate their unique nature.
- The installation of inappropriate measures can devalue a property from both a financial and cultural perspective, causing damage & requiring future investment for repairs.
- Upgrading heritage properties requires special expertise; however, high energy efficiency standards are possible.
- Strategies should maximise improvements to an EPC rating whilst minimising detrimental impacts to building fabric, internal conditions and historic value.

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