



IHBC GUIDANCE NOTES

Climate Change and Older Buildings – Key Sources GN2019/3 June 2019

This is one of a series of occasional Guidance Notes published by The Institute of Historic Building Conservation (IHBC). IHBC Guidance Notes offer current and recent guidance into topics that we consider crucial to the promotion of good built and historic environment conservation policy and practice. The Notes necessarily reflect knowledge and practice at the time they were developed, while the IHBC always welcomes new case examples, feedback and comment to research@ihbc.org.uk for future revisions and updates.

Introduction

1. The UK Government has committed to Net Zero carbon emissions by 2050. The Scottish Government has committed to Net Zero by 2045, and the Welsh Government, which has made retrofit of existing buildings a national infrastructure priority, is now aiming for Net Zero by 2050 (1). Northern Ireland is included in the UK-wide target but does not have its own climate change legislation and emissions targets.
2. Buildings account for 26% of the UK greenhouse gas emissions (primarily due to fossil fuels in heating). Older buildings of traditional solid wall construction form to up to 35% of the stock (2).
3. This guidance note provides web-based links to help IHBC members with these issues. It starts with key information and advice on adaptation and mitigation; it highlights issues; and summarises Climate Change challenges affecting historic and traditional buildings. Please also read the companion IHBC guidance note on Retrofitting Traditional Buildings, which covers PAS 2035 (3) and BS 7913 (4) the key standards for conservation and retrofit of traditional buildings.

ADAPTATION for resilience

4. Adaptation deals with consequences of climate change, including flooding and extreme rainfall. It involves anything from good maintenance, to altering rainwater goods to enable them to cope with increasingly frequent extreme weather events, to dealing with flood risks. Historic England's *Flooding and Historic Buildings* (5) gives guidance on how to manage flood risks and improve resilience in relation to historic buildings, and on dealing with the consequences if the worst should happen.

MITIGATION to reduce emissions

5. Mitigation involves work to buildings to reduce greenhouse gas emissions. Buildings in poor repair perform less efficiently; good maintenance and repair should be the first action. If retrofit measures are considered, be aware that they may make a building less sustainable unless approached in a well-informed way.

6. Useful introductions and/or more detailed advice:

- Historic England's *Saving Energy* website ([6](#))
- Historic Environment Scotland's *Saving energy in traditional buildings* ([7](#))
- Society for Protection of Ancient Buildings
<https://www.spab.org.uk>, technical advice line 0207 456 0916
- SPAB briefing *Energy efficiency in old buildings* ([8](#))
- SPAB's *Control of Dampness in Existing Buildings* ([9](#))
- Sustainable Traditional Building Alliance (STBA) <http://stbauk.org>
The STBA brings together industry, sustainability and heritage interests. Many useful references and links on the website. Very good technical information, but be aware of the need to analyse significance, and for heritage impact assessments which are now mandatory in Wales
- STBA's *Planning Responsible Retrofit* ([10](#)) - sets out key issues and principles
- STBA's *What is Whole House Retrofit?* ([11](#)) - the basis of the STBA's approach, now taken up by the Government
- STBA's *Guidance Wheel* ([12](#)) allows you to explore a range of potential options, and the interactions between them, for particular building types and orientations
- STBA's *A Bristolian's Guide to Solid Wall Insulation* ([13](#)) - produced specifically for Bristol, but sets out principles, including the Whole House approach, which are relevant UK-wide
- *Fit for the Future Network* ([14](#)) - shares practical solutions from a wide network across the not-for-profit, heritage, public and cultural sectors.

7. Relevant legislation, regulations, government guidance and standards

There is helpful legislation and guidance available:

- *Sustainable and Secure Buildings Act 2004*, s2⁽¹⁾ - "In making building regulations the Secretary of State shall have regard, in particular, to the desirability of preserving the character of protected buildings that are of special historical or architectural interest." ([15](#))
- An excellent basis for balancing energy efficiency, fabric and heritage is provided in the *Building Regulations Part L1B and Part L2B* ([16](#)). See paras 3.6a, and 3.7 – 3.14. For historic buildings, and "buildings of traditional construction with permeable fabric that both absorbs and readily allows the evaporation of moisture", these encourage energy efficiency improvements, but only those which damage neither fabric nor character. (NB: Part L is to be reviewed in late 2019).
- The Government is tackling energy efficiency and Fuel Poverty through the *Private Rented Sector Minimum Energy Efficiency Standards (MEES)*

(17) which require landlords of domestic and non-domestic buildings, at the end of a tenancy, to bring their building up to a specified standard or it cannot be re-let. The current minimum MEES requirement is Band E, but the trajectory is for Band C by 2030. There are possible exemptions for listed buildings and buildings in conservation areas, but the legislation is unclear and the process is complicated. Landlords have to prove that energy efficiency initiatives would unacceptably alter the character of a listed building; the MEES legislation suggests owners “should take advice from their local planning authority’s conservation officer”.

- The key standard in terms of overall sustainability and energy efficiency is *British Standard BS 7913:2013 - guide to the conservation of historic buildings*. (3) It promotes repairs as an essential starting point for energy efficiency.
- Whole life consideration is promoted by European Standard *BS EN 15978:2011*; its construction life cycle diagram is particularly useful. (18)

8. Differences between modern and traditional construction

Government and industry have too often promoted a “one size fits all” approach to older buildings. A notably useful exception, which recognises differing moisture performance between modern and historic buildings, is the *Guidance to Landlords and Local Authorities on the Private Rented Property Minimum Standard* (19): see the very helpful technical advice in Chapter 3.

There is an ever-increasing body of knowledge, and evidence of problems, to which you can refer if advocating a different approach:

- *SPAB research 2011-18* (20) hard evidence of real building performance
- *Improving the Thermal Performance of Traditional Buildings 2011 COTAC Conference presentations* (21), many prescient and some still alarmingly relevant
- STBA’s 2012 *Responsible Retrofit* (22) a key document which highlighted many issues and prompted the Government to commission BRE’s Solid Wall Study
- Colin King (BRE) *Unintended Consequences* presentation to Ecobuild 2014 (23) a vitally important presentation of otherwise unpublished material from BRE’s Solid Wall Study: highlights major problems arising from retrofits to solid wall buildings.
- *Solid Wall Literature Review 2015* (BRE for DECC) (2) key document highlighting many issues and the need for caution.
- *Solid wall insulation failures in 390 dwellings at Fishwyck, Preston* (24) notable published evidence of a failed retrofit scheme on a large scale, very costly in terms of both money and carbon.

CLIMATE CHANGE TARGETS

9. The Government’s new Net Zero commitment has overtaken the UK statutory targets (80% carbon reduction by 2050) set out in the *Climate Change Act 2008* and the *Energy Act 2011*. Current Government strategy is set out in the *Clean Growth Strategy (2018)* (25). The Intergovernmental Panel on Climate Change’s *Special Report (October 2018)* (26) on Global Warming of 1.5°C, set out a much more urgent timescale (2030), now taken up by Extinction Rebellion

and declarations of Climate Emergencies. Most recently, the Committee on Climate Change's *Net Zero Report (2019)* (27) seeks net zero greenhouse gases by 2050; the Government's new commitment meets the Committee's recommendations.

The Government relies on Energy Performance Certificates (EPCs) as a measure of progress; EPCs are a flawed measure when applied to older buildings, but so established that major change seems unlikely. See the STBA's *EPCs and the Whole House Approach – a Scoping Study* (28) produced for Historic England and the National Trust.

The Clean Growth Strategy set out targets "where practical, cost-effective, and affordable" for all fuel-poor homes, and as many as possible privately-rented homes, to be upgraded to EPC Band C by 2030, and as many homes as possible to be EPC Band C by 2035. The Committee on Climate Change's assessment of the Clean Growth Strategy suggested these targets could involve insulation of a further 1.5 million solid walls by 2030, and a further 2 million solid walls by 2050. For more detailed consideration of building-related issues, opportunities and challenges, see John Preston's *February 2019 Policy Update for STBA* (29), and Chapter 3 of the Climate Change Committee's *Net Zero Technical Report* (30). Theresa May has set out a *Buildings mission initiative* to "at least halve energy use in new builds by 2030 and to halve the cost of retrofitting existing buildings to the same standard".

SKILLS AND QUALIFICATIONS

10. A retrofit skills crisis (responsible for many unintended consequences) and ever-increasing demand have been overlaid on the longstanding skills crisis in traditional construction. See the 2013 "Skills Needs Analysis" of repair maintenance and retrofit (31)

The Level 3 Award in Energy Efficiency Measures for Older and Traditional Buildings has been developed specifically for buildings of traditional construction. (32)

John Preston MA(Cantab), DipTP, IHBC

Endnotes

1. <https://www.bbc.co.uk/news/science-environment-48596775>
2. Mostly, but not all, pre 1919; see Solid Wall Literature Review 2015 (BRE for DECC)
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/396363/solid_wall_insulation_literature_review.pdf
3. PAS 2035:2019 Specification for the energy retrofit of domestic buildings (due to be published by BSI 18 June 2019)
<https://standardsdevelopment.bsigroup.com/projects/2017-04146>
4. BS7913:2013 Guide to the conservation of historic buildings – IHBC branded version available at <https://www.ihbc.org.uk/bs/>

5. <https://historicengland.org.uk/images-books/publications/flooding-and-historic-buildings-2ednrev/hea017-flooding-and-historic-buildings/>
6. <https://historicengland.org.uk/advice/your-home/saving-energy/>
7. <https://www.historicenvironment.scot/advice-and-support/your-property/saving-energy-in-traditional-buildings/>
8. https://www.spab.org.uk/sites/default/files/documents/MainSociety/SPAB%20Briefing_Energy%20efficiency.pdf
9. https://www.spab.org.uk/sites/default/files/SPAB%20Control_of_Dampness_Edn_01_Rev_01_0.pdf
10. <http://www.sdfoundation.org.uk/downloads/Guide-1-Planning-Responsible-Retrofit-2015-08.pdf>
11. <http://www.sdfoundation.org.uk/downloads/What-is-Whole-House-Retrofit-Dec2016.pdf>
12. <http://responsible-retrofit.org/wheel/>
13. http://files.site-fusion.co.uk/webfusion58199/file/2015_bristol-solid-wall-insulation-guidance.pdf
14. <https://fftf.org.uk/home>
15. <https://www.legislation.gov.uk/ukpga/2004/22/section/2>
16. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/697629/L1B_secure-1.pdf
17. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/794253/domestic-prs-minimum-standard-guidance.pdf
18. <http://www.sdfoundation.org.uk/downloads/2017-06-John-Preston-original.pdf> (see slide 4)
19. <https://www.gov.uk/government/publications/the-private-rented-property-minimum-standard-landlord-guidance-documents>
20. <https://www.spab.org.uk/advice/research/findings>
21. <http://www.cotac.global/conferences/conf11/>
22. http://www.sdfoundation.org.uk/downloads/RESPONSIBLE-RETROFIT_FINAL_20_SEPT_2012.pdf
23. <https://www.slideshare.net/BREGroup/colin-king-ecobuild-6-march-2014>
24. <https://passivehouseplus.ie/news/health/disastrous-preston-retrofit-scheme-remains-unresolved>
25. <https://www.gov.uk/government/publications/clean-growth-strategy>
26. <https://www.ipcc.ch/sr15/chapter/summary-for-policy-makers/>

27. <https://www.theccc.org.uk/publication/net-zero-the-uks-contribution-to-stopping-global-warming/>
28. <http://files.site-fusion.co.uk/5a/80/5a80ceaa-eeb8-4a0a-92e3-1778d1022a59.pdf>
29. <http://files.site-fusion.co.uk/07/6f/076f998b-ef10-4a7f-9751-97c18cf591e9.pdf>
30. <https://www.theccc.org.uk/publication/net-zero-technical-report/>
31. <https://historicengland.org.uk/content/heritage-counts/pub/2013/skills-needs-analysis-2013-repair-maintenance-energy-efficiency-retrofit/>
32. <https://www.sqa.org.uk/sqa/84013.html>