



Overheating Solutions for New Housing Research Proposal 2017

Version 4 - final

13th July 2017

Title: Helping planners to identify and improve housing development proposals with a high risk of overheating

Introduction

Overheating in new homes is a problem in certain types of properties, especially in towns and cities. This is recognised by DCLG who have commissioned research into certain aspects of the problem in 2017, which may lead to changes in Building Regulation. BEIS are also consulting on proposals to amend SAP Appendix P, the semi-official “overheating check”.

The Good Homes Alliance has established a cross sectoral working group to examine the problems and explore potential solutions - Overheating Solutions in New Homes (OSNH) working group (terms of reference attached).

After close liaison with DCLG it is clear that some important areas of research are not being covered and this presents an opportunity for the OSNH group to carry out much needed work.

This paper sets out a proposal for one key area of research namely to

- examine the costs and benefits of local planning authorities across the UK utilising a protocol or guidance document to help them identify risky new schemes during the planning process
- work with planners to determine how they can work more closely with developers to reduce the risk/chances for overheating, and
- develop an approach for delivering the protocol/guidance, in consultation with planners

Potential Area of Research

Our conclusion is that overheating cannot yet be considered to be a managed risk for much of the sector. There are gaps and uncertainties in current frame-works which mean inherently risky designs and buildings can be approved. – ZCH Overheating in Homes - The Big Picture, 2015

The Planning system in the UK is an area where overheating risk could be mitigated at the design and concept stage/pre-application stage of new residential developments.

In particular, the areas below could be explored and examined in detail, with a view to introducing protocols and processes to assist planners in helping to ensure proposals for new housing schemes have adequately assessed the potential for overheating, and if the risk appears high, appropriate adjustments will/have been made to the design to manage this. The work would complement the detailed guidance for designers and engineers set out in CIBSE's new TM59: Design Methodology for the assessment of overheating risk in homes

The end product could be a form of risk matrix or decision-tree for planners that helps to identify overheating risks for various different types of buildings, e.g., detached houses, flats, student accommodation and care homes, locations and users. We would be guided by the planners consulted on the most useful way to present the information. The factors likely to be included are:

- Location, such as:
 - o Local climate
 - o Micro-climate and landscape mitigation
 - o Heat islands
 - o External air quality
 - o Noise sources
 - o Security issues
- Orientation, such as:
 - o Aspect
 - o Daylight/sunlight access
 - o Room positioning
- Built form and design
 - o Building type
 - o Construction type
 - o Shading
 - o Glazing ration
 - o Room depth

Internal heat gains

- Heating systems/controls
- Appliances/equipment
- Number of occupants
- Ventilation and cooling, such as
 - Capacity for effective natural ventilation
 - Capacity for effective mechanical ventilation
 - Air conditioning
- Occupants, such as
 - Vulnerability
 - Controls strategy
 - Shading

The risk matrix/decision tree is intended to assist planners in understanding the risk of overheating posed by a given new scheme at the earliest possible stages of the planning process, and to aid them in working collaboratively with development/building project team to achieve the following positive outcomes:

- Improved chance of avoiding overheating and minimising risks to the health and wellbeing of occupants
- Minimising any high cost services/plant and their running costs
- Minimising reputational risk
- Establishing good Corporate Social Responsibility outcomes
- Avoiding costly retrofitting in the future

This guidance would not replace dynamic thermal modelling or be used to show compliance with CIBSE TM49/52/59, it is a guidance and risk based process to help ameliorate and mitigate against overheating risk.

Planning Guidance on Overheating

The following guidance/legislation already exists in this area and would need to be fully integrated in any new research outcomes.

- National Planning Policy Framework:
 - o Paragraph 95. To support the move to a low carbon future, local planning authorities should:
 - plan for new development in locations and ways which reduce greenhouse gas emissions
 - actively support energy efficiency improvements to existing buildings
 - when setting any local requirement for a building's sustainability, do so in a way consistent with the government's zero carbon buildings policy and adopt nationally described standards
 - o Paragraph 96. In determining planning applications, local planning authorities should expect new development to:
 - comply with adopted Local Plan policies on local requirements for decentralised energy supply unless it can be demonstrated by the applicant, having regard to the type of development involved and its design, that this is not feasible or viable
 - take account of landform, layout, building orientation, massing and landscaping to minimise energy consumption
- 2017 Housing White Paper mentions rising temperatures but not overheating specifically
 - o Planning has an important potential mitigating role to avoid and minimise overheating risk. Research that identifies roles, process methods and solutions could be opportune and fundable. The production of a Planning Risk Matrix for Overheating could be very useful to the industry.

Meeting the challenge of climate change: The National Planning Policy Framework sets out how local planning authorities are expected to consider and address the range of impacts arising from climate change. They should adopt proactive strategies to mitigate and adapt to climate change, taking full account of flood risk, coastal change and water supply and demand considerations. The glossary to the Framework explains that for climate change adaptation, climatic factors also include rising temperatures. To make this clearer, we propose to amend the list of climate change factors set out in the policy itself to include rising temperatures

Local planning authorities need to take a positive approach to addressing climate change impacts on their communities and infrastructure. The current policy is clear that new development should be planned to avoid increased vulnerability to climate change. The Government also wants to be quite clear that when producing plans, local planning authorities need to consider not just individual developments, but more broadly climate change impacts on the community as a whole. We therefore propose to make clear that local planning policies should support measures for the future resilience of communities and infrastructure to climate change.

Housing White Paper- Fixing our broken housing market – Feb 2017

- BRE Briefing Document: Overheating in Dwellings: 116885: 2016 - <https://www.bre.co.uk/filelibrary/Briefing%20papers/116885-Overheating-Guidance-v3.pdf>
- CIBSE TM 59: Design Methodology for the assessment of overheating risk in homes - <http://www.cibse.org/knowledge/knowledge-items/detail?id=a0q000000CQ83EQAT>

- Zero Carbon Hub (ZCH): Overheating reports/Guidance, Strategies for Managing Overheating for Local Authorities - <http://www.zerocarbonhub.org/sites/default/files/resources/reports/ZCH-OverheatingInHomes-LAs-Spreads%5B1%5D.pdf>
- ZCH Overheating in New Homes: A Review of the Evidence http://www.zerocarbonhub.org/sites/default/files/resources/reports/Overheating_in_New_Homes-A_review_of_the_evidence_NF46.pdf
- ZCH Overheating in homes – The Big Picture <http://www.zerocarbonhub.org/sites/default/files/resources/reports/ZCH-OverheatingInHomes-TheBigPicture-01.1.pdf>
- ZCH Tackling Overheating in Buildings - <http://www.zerocarbonhub.org/current-projects/tackling-overheating-buildings>

Delivery Team

The research team is anticipated to include:

- Good Homes Alliance (Co-ordination/Admin)
- Sheffield University
- Specialists in overheating drawn from the GHAs Overheating Solutions in New Homes working group, that includes:
 - o BRE
 - o CIBSE
 - o Berkeley Group
 - o LABC
 - o BSRIA
 - o NHBC
 - o UWE
 - o Loughborough University
 - o Oxford Brookes University
 - o Four Walls Consulting
 - o The Buildings Hub
 - o SWECO
 - o ICENI
 - o ARCC Network (Adaptation and Resilience in the Context of Change)

Outputs

- Online guidance protocols/risk matrix – free to use
- Ideally, outputs to go on the Planning Portal or another website planners frequently use. If this is not possible, other options will be explored
- PDF electronic report – free to access
- Seminars to introduce the project/protocols: (4 - delivered in the regions)

Funding/Sponsorship

We anticipate that this research work will cost approximately £20-25,000 and we are seeking sponsorship to fund this work. Sponsors will receive full credit in any website/publication/seminar materials.

Approximate time breakdown:

- 1) Consulting with planners/stakeholders and background research – £4,000
- 2) Developing the content for the guidance material/risk matrix – £8,000
- 3) Technical checks of materials, addressing comments and general QA – £4,000
- 4) Designing and final edit of the materials - £3,000
- 5) Promotional events and dissemination - £4,000

For further information and discussions regarding funding/sponsorship please contact: Julian Brooks, Network & Programme Manager on 01308 487012/07980 706838 julian@goodhomes.org.uk