

## Written evidence submitted by the London Borough of Hackney

### 1. Summary

- 1.1. The Government's proposals to update Building Regulations are not ambitious enough. More stringent targets, metrics and methods of assessment, verification and monitoring of compliance are required to create low carbon developments and promote the decarbonization of existing buildings.
- 1.2. The current estimation of net-zero emissions in buildings excludes embodied carbon and only assesses 'regulated energy' at the 'use' stage. There is a missed opportunity to take advantage of natural materials that have low embodied carbon to reduce the impact at a whole life cycle assessment. Natural materials have further positive benefits for the health and wellbeing of people and mitigate the negative impact on natural ecosystems.
- 1.3. More than 500 Local Authorities in the UK have declared a Climate Emergency. Most are also developing strategic energy plans that target net-zero carbon emissions well before the Government's date of 2050. Opportunities and commitments that various institutions are putting into reducing carbon emissions and promoting sustainability in the built environment should be further endorsed.
- 1.4. The Planning system is better able to deliver a sustainable built environment through strategic planning that meets the present and future needs of residents. Local Authorities are strategically positioned to promote and implement sustainable development, but they need more support and funding from the Government.
- 1.5. There is a clear need to build more dwellings, but proposed regulations and planning instruments risk promoting poor quality development, rather than low carbon infrastructures and resilience to climate change. Under PDR, there are no requirements for developers to assess if a dwelling is prone to overheating, is energy efficient in design, targets net-zero carbon, promotes efficient use of water, is air quality neutral or increases biodiversity and green infrastructure.
- 1.6. London and Hackney Local Plans already include policies that endorse green infrastructure for the improvement of the health and wellbeing of residents, improvement of air quality, promote carbon sequestration and a reduction in carbon emissions, mitigate flood risk and overheating, and create resilience to the effects of urban heat island and climate change.
- 1.7. Methodologies, toolkits and benchmarks already exist that estimate embodied carbon in life cycle analyses, but are not widely used across the construction sector. Several reasons can be considered and an increase in governmental incentives and a change in regulation is required for wider implementation.
- 1.8. Current retrofit standards lack vision and ambition. Government should set a National Retrofit Strategy with adequate funding and a clear roadmap for action up to and beyond 2025. Most of the buildings that will be part of the net-zero carbon target of 2050 have already been built, and most will require significant upgrades to become energy efficient, low carbon and resilient to the impacts of climate change.

### 2. The London Borough of Hackney and sustainability of the built environment

- 2.1. The London Borough of Hackney has declared a Climate Emergency and has committed to "do everything within our power to deliver against the targets set by

the IPCC's October 2018 Report across our functions (including a 45% reduction in emissions against 2010 levels by 2030 and net-zero emissions by 2040), and seek opportunities to make a greater contribution.”

- 2.2. The Local Plan 2033 (LP33) adopted in 2020 already promotes net-zero carbon across all sizes of development and has further policies to mitigate environmental impacts, recover and enhance biodiversity, promote health and wellbeing in the population, and build resilient infrastructures which adapt to the effects of climate change. The Borough is also strongly committed to promoting social sustainability and acknowledges that to succeed in all spheres a concerted approach from all is needed.
- 2.3. This inquiry is timely, as proposed regulations and recently adopted planning instruments could compromise the achievement of sustainable development goals and the UK's legally binding commitments to net-zero carbon by 2050. A careful approach to fulfil the urgent needs of the present needs to be made without compromising the needs of future generations. Local Authorities are rightly positioned to collaborate and contribute to these goals.

**3. To what extent have the Climate Change Committee's recommendations on decarbonising the structural fabric of new homes been met?**

- 3.1. The Government's proposal to update Building Regulations Part L and F and the new Future Homes / Buildings Standards (FHS, FBS) are not ambitious enough:
- 3.2. The original proposal to remove fabric energy efficiency standard (FEES) from the standard assessments, recently reconsidered, could risk buildings primarily relying on the decarbonization of the grid instead of a reduced demand first approach, with obvious cost benefits to the end consumer and reducing the strain on the electricity grid;
- 3.3. The GLA and most Local Authorities in London already have policies that require more demanding targets. Hackney, for instance, has a policy on net-zero carbon emissions that is applicable to all sizes of development, with the minimum required target of 35% beyond Part L, which is already above the recent proposals. The remaining shortfall object of a carbon offset;
- 3.4. Proposals to reduce the 'performance gap' should have included a proposal to shift compliance and monitoring to new metrics based on operational energy that are easily understood and measured at meters (e.g. energy use intensity, instead of the proposal for primary energy or current regulated carbon emissions). Irrespectively, more funds should be allocated to Local Authorities in order to enable Planning and Building Control to monitor compliance. The 'be seen' approach from the energy hierarchy, from the recently adopted London plan, should be more widely applied;
- 3.5. It is positive that a new proposal for an 'overheating' regulation and a more thorough assessment of the risk of overheating has been made. This is already a requirement for GLA referable applications, and Hackney's Local Plan goes further with a policy for all new development to mitigate the risk of overheating and consider the effects of climate change. More, however, should have been promoted in the revised regulations in terms of passive solutions to prevent or dissipate heat (e.g. shading and ventilation) before active systems are implemented. Part L mainly addresses heating loads, but overheating is becoming a problem in more airtight buildings. More referencing to the application of the GLA cooling hierarchy could be adopted.

**4. How can materials be employed to reduce the carbon impact of new buildings, including efficient heating and cooling, and which materials are most effective at reducing embodied carbon?**

**4.1.** Materials can passively reduce heat gains and losses from the envelope by acting as insulators and this has an immediate impact on reducing the heat/cooling demand. They can also act as thermal storage (thermal mass) and create a time lag and reduce the peak demand on the systems (this applies to the 'use' stage of a life cycle). Examples that are commonly used in construction are insulation materials, high specification glazing or bricks, stone or dense concrete. Others like phase change materials, or new developments in high reflective paint can also have an impact in reducing the energy demand. However, some materials have a poor embodied carbon performance or require high levels of energy in its transformation from a raw material to a useful construction element (e.g. concrete or steel). It is also important to consider the performance, durability, maintenance and ability to be dismantled and reused/recycled without downgrading its inherent qualities. Across the borough of Hackney there are various examples of good quality design planned to last with brick materials.

**4.2.** Natural materials, namely wood, can also account for carbon sequestration during its use, and are biodegradable materials that will not create environmental hazards upon the end of its life cycle. They have low embodied carbon and the sequestered carbon can remain locked for many years. In recent years, developments in Hackney have produced good examples of CLT/wood constructions and cladding. Recent fire events and the Hackitt report have highlighted the urgent need to act and ensure clarity over responsibilities, but also to verify compliance and the performance of buildings post construction.

**4.3.** Reclaimed materials can also help reduce waste at construction and the end of life. Using the reclaimed waste in the building process can significantly reduce waste sent to landfill and reduce the environmental impact.

**5. What role can nature-based materials play in achieving the Government's net-zero ambition?**

**5.1.** The current estimation of net-zero emissions in buildings excludes embodied carbon and only assesses 'regulated energy' at the 'use' stage. Therefore, there is a missed opportunity to take advantage of natural materials that have low embodied carbon during the various phases of transformation from raw materials, construction, maintenance under use, as well as associated with the disassembly and end of life of the construction. The potential of these materials to be fully reusable, recyclable or biodegradable can minimise carbon emissions associated with waste treatment.

**5.2.** Another important aspect is that natural materials in construction create a positive connection to the natural environment and are usually associated with good indoor air quality (e.g. have reduced VOCs).

**5.3.** Lastly, natural materials have low or zero Global Warming Potential (GWP) and Zero Ozone Depleting Potential (ODP). This is an aspect to be paid more attention to in the selection of insulation and refrigerant materials when assessing the whole life cycle carbon.

**6. What role can the planning system, permitted development and building regulations play in delivering a sustainable built environment? How can these policies incentivise developers to use low carbon materials and sustainable design?**

- 6.1. There is an enormous uncertainty on new governmental proposals. On one side, they are promoting design codes and guides and have set net-zero carbon commitments, and on the other, the Government proposes construction with minimum verification of quality or to remove the opportunities for Local Authorities to go beyond governmental targets. It is positive that the Government's initial response to the FHS consultation is to propose maintaining the FEES and powers to Local Authorities. The precautionary principle should be further adopted: where uncertainty of definite approaches or impacts should not preclude action. The opportunities and commitments that various institutions are putting into reducing carbon emissions and promoting sustainability in the built environment should be further endorsed.
- 6.2. More than 500 Local Authorities in the UK have declared a Climate Emergency. Most are also developing strategic energy plans that target net-zero carbon emissions well before the Government's date of 2050. The Hackney Energy Strategy is very ambitious in its proposals to account for embodied carbon in the Council's portfolio.
- 6.3. The Planning system is better able to deliver a sustainable built environment through strategic planning that meets the present and future needs of residents. Permitted Development Rights (PDR) is possibly a very dangerous approach to promote sustainability as it excludes the opportunity that Local Authorities have to fully scrutinise all new developments in various areas. In particular, imposing quality design, which promotes comfort and wellbeing for the occupants and has a positive impact on the neighbourhood; most importantly, it targets low carbon development.
- 6.4. There is a clear need to build more dwellings, but PDR risks development exploitation and does not create new low carbon dwellings. Under PDR, there are no requirements for developers to assess if a dwelling is prone to overheating, is energy efficient in design, targets net-zero carbon, promotes efficient use of water, is air quality neutral or increases biodiversity and green infrastructure. Unless there is a clear change for the new 'fast track' planning/constructions to be clearly sustainable and to fully address the impacts of a changing climate, PDR is likely to further aggravate the carbon emissions from buildings. Moreover, as there is not a requirement to contribute to affordable housing under PDR, these new dwellings will not promote sustainable development in their environmental and social spheres and will only increase profitability for developers.

**7. What methods account for embodied carbon in buildings and how can this be consistently applied across the sector?**

- 7.1. Although there are several methods to estimate embodied carbon in life cycle analysis, they are not widely used across the construction sector. Identifiable reasons include: lack of information about the origin and impact of materials (reduced Environmental Product Declarations, EPD, or reliable databases); detail and complex data being required to accurately estimate embodied carbon; it is often difficult to assess at the design phase; opaque information on carbon factors conversions; and different units that prevent cross boundary calculations. There is also uncertainty associated with the degree of the calculation, whereas simplified approaches sometimes show better performance than more detailed assessments.
- 7.2. The RICS methodology, the LETI embodied carbon proposed benchmarks that have been developed by a large group of experts and adopted by various institutions including RIBA, or the GLA whole life cycle carbon assessment, can promote a change in the near future. CIBSE is also actively contributing to improve

the accuracy of assessments. One example is the recent TM65 providing a methodology to estimate the carbon embodied in building services systems. Therefore, methodologies, toolkits and benchmarks are already available, but an increase in governmental incentives and a change in regulation is required.

- 8. Should the embodied carbon impact of alternative building materials take into account the carbon cost of manufacture and delivery to site, enabling customers to assess the relative impact of imported versus domestically sourced materials?**
  - 8.1. Yes, methodologies of assessment should even go beyond this and be 'cradle to cradle', with a minimum requirement of 'cradle to site' where the transportation of materials is accounted for. Locally sourced materials should also be a stronger requirement in procurement.
- 9. How well is green infrastructure being incorporated into building design and developments to achieve climate resilience and other benefits?**
  - 9.1. The newly proposed Biodiversity Net Gain (BNG) metric and minimum target is welcome, especially to assess on a wider scale the increase in green infrastructure. Hackney's Local Plan already has policies promoting biodiversity and the conservation and enhancement of natural ecosystems. Regarding building design, the Urban Greening Factor (UGF), which is required in the new London Plan and which has already been adopted in other Local Plans, such as the one in Hackney, is essential to guarantee that developments contribute to the enhancement of the green infrastructure.
  - 9.2. There are several benefits to the policies which are included in the London and Hackney Local Plans: these policies endorse green and vertical roofs, trees and open spaces for the improvement of the health and wellbeing of residents, improvement of air quality, promote carbon sequestration and a reduction in carbon emissions, mitigate flood risk and overheating, and create resilience to the effects of urban heat island and climate change, to mention but a few.
- 10. How should we take into account the use of materials to minimise carbon footprint, such as use of water harvesting from the roof, grey water circulation, porous surfaces for hardstanding, energy generation systems such as solar panels?**
  - 10.1. Sustainability assessments, like the code for sustainable homes (that was withdrawn) or the current BREEAM assessment, provide a holistic assessment of environmental areas that go beyond the current building regulations and promote more sustainable buildings.
  - 10.2. Promoting the adoption of locally sourced materials or materials from accredited sustainable harvesting sources, and the procurement of materials that have EPDs or green credentials from recognised databases (e.g. BRE green guide to specification).
  - 10.3. National and Local Plans must have policies clearly promoting SuDS, water harvesting and water efficiency as well as a requirement to install local sources of renewable energy. Solar panels have clear benefits in terms of generating clean energy locally so that the electricity grid and substations are not overloaded and losses in transportation are minimised. However, further discussions could be had on the embodied carbon associated with the system's components and where they are sourced.
- 11. How should re-use and refurbishment of buildings be balanced with new developments?**

**11.1.** Principles of the circular economy should be fully adopted when assessing the opportunities and constraints for re-use/refurbishment versus new build.

**12. What can the Government do to incentivise more repair, maintenance and retrofit of existing buildings?**

**12.1.** Current retrofit standards lack vision and ambition. Government should set a National Retrofit Strategy with adequate funding and a clear roadmap for action for and beyond 2025.

**12.2.** Most of the buildings that will be part of the net-zero carbon target of 2050 have already been built, and most will require significant upgrades to become energy efficient, low carbon and resilient to the impacts of climate change. The retrofit program should include a whole building retrofit approach and could follow the framework indicated in PAS2035.

**12.3.** Cashback and grants, more fiscal incentives, low interest loans, low VAT associated with retrofits and energy efficiency must be adopted to seriously promote the upgrading of existing buildings to as close as reasonably possible to net-zero carbon.

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