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**Caroline Russell AM**  
Chair of the Environment Committee

30 January 2019

Dear Mayor,

London has a monumental challenge to reduce its carbon emissions in response to the current climate emergency. We welcome your zero carbon city goal. However, following the IPCC report which prompted the Assembly to agree a Climate Emergency motion and your subsequent pledge, this target will need to be brought forward from 2050 and you will need additional powers and funding from Government to make it possible. If London is to meet this ambitious carbon reduction goal, while also tackling the severe housing crisis, reducing embodied carbon must be a priority.<sup>1 2</sup>

Progress has been made in reducing the operational emissions from London's homes and workplaces. But the carbon emitted in extracting and processing building materials, assembling them into a building, and dealing with them after the building goes out of use can add up to as much as or more than the operational emissions over a building's lifetime.<sup>3</sup> London will not make its contribution to the carbon reductions the world needs to make without drastically reducing these embodied carbon emissions.

### **Reducing embodied carbon**

There are many practical steps that can be taken to reduce embodied carbon. Architects and designers can produce designs that require less material, and that use lighter and lower-carbon materials, especially recycled.<sup>4</sup> Builders and suppliers can adopt energy-saving and low-waste methods. There are a host of emerging technologies that enable lower-carbon construction, from precision off-site manufacture to design for disassembly and electronic ledgers of building components and their characteristics.<sup>5</sup> Materials from old buildings are a resource and recognising them as such rather than treating them as 'waste' offers great benefits.

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<sup>1</sup> The Brexit Alliance Group supports energy efficiency, but does not accept the characterisation of the current situation as a climate emergency, does not agree with the Mayor's zero carbon city goal, and does not consider that additional powers or funding for the Mayor are required for this purpose.

<sup>2</sup> The GLA Conservatives do not believe there is a climate emergency.

<sup>3</sup> London Assembly Environment Committee meeting, 20 September 2018, [transcript](#) page 3

<sup>4</sup> Concrete in particular is responsible for significant carbon emissions, and savings can be achieved if the amount used is reduced and/or it is substituted for a lower-carbon material—see [Designed, sealed, delivered—offsite manufactured homes](#), London Assembly report August 2017 page 22

<sup>5</sup> [Designed, sealed, delivered—offsite manufactured homes](#) covers offsite manufacture in detail—see in particular pages 21-23

Public policy, especially for a city like London that aspires to lead the world in sustainability, needs to enable and incentivise the adoption of low-carbon building. We would like to see the Mayor leading the transition towards low carbon homes by demonstrating the ambition needed to cut embodied carbon across the full range of mayoral policy areas.

## **Embodied carbon guidelines**

As low-carbon measures very often save money as well, they are obvious wins. For example, designing the building to use less material and reducing waste in the construction process. As well as reducing construction waste, precision off-site manufacturing can also reduce utility bills and operational carbon.<sup>6</sup> In many cases with the more established technologies, it is only lack of awareness and knowhow that means they are not already standard across the building design and construction industries. Mayoral guidance, referring where appropriate to methodologies and guidance from professional and expert bodies such as RICS, BRE, UK Green Building Council, RIBA and CIBSE, should help developers to know how to reduce carbon throughout their development processes. The Mayor should develop this guidance urgently and keep it up to date as knowledge increases. We would like to see the Mayor working towards delivering a design code for London's housing sector, to deliver the quantity of environmentally friendly homes that London needs.

The guidance should cover measures that can be taken at many stages in the supply chain. We would like to see an ambition for encouraging integrated supply chains across the construction sector, or at least collaboration between different links in this chain and those working on different stages of the construction, operation and deconstruction processes. Additionally, awareness of latest design technologies and methodologies such as BIM (building information modelling) and DFMA (design for manufacture and assembly) can help developers to judge the most time and cost-effective ways to reduce embodied carbon in their products and should be promoted, along with the latest research from expert bodies such as the BRE and UKGBC.

The guidance, and future stages of mayoral policy, should include post-use factors such as demolition and materials re-use and recycling, to ensure that these issues are acknowledged by developers who may currently have a limited exposure to their financial implications. Addressing post-use factors makes good business sense as well as being environmentally beneficial, for example by enabling developers to reduce the amount spent on new capital resources and inputs.

## **Embodied carbon assessments**

These guidelines, and decisions on specific developments, can be improved using databases of building performance and the characteristics and implications of different materials and methods.

The policy proposed in the current Draft London Plan, of requiring referable developments to produce an embodied carbon assessment, will add to these databases in a London context. We therefore welcome the proposal as a useful measure in itself.

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<sup>6</sup> London Assembly Environment Committee meeting, 20 September 2018, [transcript](#) pages 2 and 18, and [Designed, sealed, delivered—offsite manufactured homes](#) pages 28-29

We, like embodied carbon experts such as the UKGBC and BRE, recommend that the embodied carbon assessment should be produced not just for the planning consent stage, but should be redone on completion of the building.<sup>7</sup> Assessments at this stage will be more realistic than the initial assumptions, and will show the impact of discussions with the supply chain and other decisions made in the course of the project. This will greatly increase the quality and utility of the database. To encourage the sharing of knowledge and good practice around the industry, assessments should be made available rather than kept within the GLA. The GLA should also work with Defra and BEIS and the industry to secure the establishment of a UK-wide set of emissions factors for different materials and processes.

As detailed authenticated data from the supply chain becomes available on the components of specific buildings, this should be reported as part of assessments. By holding this data, the GLA (or another appropriate repository) can enable the efficient and sustainable use, maintenance and eventual deconstruction and re-use of the building and its materials.

Also, the GLA should ensure that the assessment requirement is applied consistently and as appropriate to major refurbishments as well as new builds. Including refurbishment in the embodied carbon database will enable informed consideration of the full merits or demerits of refurbishment compared to rebuilding.

Assessments should cover materials becoming available as part of demolition, disassembly or stripping of old buildings in the process of redevelopment or refurbishment. As well as informing carbon assessments, exchanging this information could help link sources and users of recyclable and re-usable materials.

### **Embodied carbon standards, requirements and incentives**

The building industry can be slow to change. For most developments, industry standards and their attendant economies of scale and simplicity guide choices more than the latest innovations or highest specifications. Therefore, a policy needs to include incentives and standards to drive better methods through the market.

We were disappointed that the draft London Plan ambition for major developments to reduce their 'construction carbon' was removed following consultation.<sup>8</sup> Unless this can be re-included, we recommend that a future revision of the London Plan, any associated supplementary planning guidance and/or other Mayoral policies must set standards for embodied carbon. This could be a fixed requirement like the zero-operational carbon standard, or it could be a benchmark with incentives either side, such as s106 credits for exceeding the standard and penalties for missing it. This will need to be supported by specific GLA Key Performance Indicators, with ambitious targets for reducing embodied carbon across London's new buildings over time, as there were for operational carbon emissions in the lead-up to the zero-operational carbon standard. As building types vary in their carbon characteristics, it is likely to be necessary to set different standards for different building types. The data gathered in the current phase of the policy can inform the setting of these standards and the level of incentives, if applicable.

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<sup>7</sup> London Assembly Environment Committee meeting, 20 September 2018, [transcript](#) pages 14 and 26

<sup>8</sup> The Brexit Alliance Group is not disappointed that the construction carbon element was removed from the zero carbon standard and does not wish to see it re-included.

Setting a standard rather than requiring certain methods or materials gives room for innovation and ingenuity, and minimises the risk of perverse incentives.

This standard-setting approach to embodied carbon should be implemented in the London Plan and other mayoral policies with some urgency—certainly no later than the next major revision of the London Plan. To enable the industry to prepare to meet this standard, the Mayor should announce a date as soon as possible for it to come into operation within the next five years. However, the Mayor will need to lobby for changes at national level to enable this transition. In particular, the UK Government should as far as possible remove the perverse incentive created by charging VAT on building refurbishments and improvements but not on new builds.<sup>9</sup>

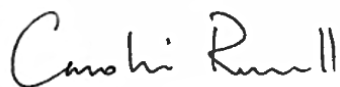
A preliminary step to a London-wide standard could be to implement an embodied carbon standard in developments funded or directly supported by the Mayor. The UK Government should also be encouraged to follow this example. We would also like to see the Mayor lobby the Government to strengthen its own guidance, particularly that produced by The Ministry of Housing, Communities and Local Government and the Homes and Communities Agency. Supporting a transition to low-carbon homes at national level means that developers can benefit from economies of scale on new techniques, building materials and expertise required.

Other mayoral policies can also contribute to reducing embodied carbon. The Mayor's Economic Development Strategy, as it develops towards the circular economy model, should encourage producer responsibility and the retention of asset ownership by those who can re-use the materials. Buildings are often leased. They could be leased by developers, or materials could even be leased to developers by manufacturers further up the chain.

May I take this opportunity to thank the GLA officers who attended the committee's meeting of 20 September 2018 and provided other support and advice to the committee's work.

I look forward to receiving your response to this letter no later than Friday 29 March. Please copy in [EnvironmentCommittee@London.gov.uk](mailto:EnvironmentCommittee@London.gov.uk).

Yours sincerely,



Caroline Russell AM  
**Chair of the Environment Committee**

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<sup>9</sup> The Brexit Alliance Group notes that the discretion of the UK Government to vary VAT rates is currently limited by an EU Directive, and calls upon the government to remove VAT on building refurbishments when the UK leaves the EU.