

Hello,

I am an independent chartered engineer and provider of mechanical, environmental and energy consultancy services for projects in London for more than a decade. My experience extends from one single dwelling and small infill developments to large scale mixed use social redevelopment and prestigious schemes including Battersea Power Station.

From my experience and views, I herewith provide my comments on **Section 9** of the London Plan and hope that these serve a purpose in assisting the robustness of the future policies. I am happy to make myself available to discuss these views further if desired.

1. Section 9 provides guidance on the provision of major developments in respect of energy and carbon reduction with limited or no guidance for developments of less than 10 dwellings. Through the nature of Policy SI2 item C, such fabric reductions can and should be made on individual new dwellings or small commercial units although it is recognised that achieving the full 35% carbon reduction on site may be challenging for dwellings. Considering that dealing with the housing shortage in London will include a large number of individual and small scale (less than 10) homes via schemes such as the Hidden Homes programme, guidance and targets on schemes smaller than 10 units should be provided. I believe there should also be a requirement for a reduced energy strategy for non-major developments to demonstrate how fabric carbon reduction (Lean), review of local district energy connection (Clean) and renewable energy opportunities have been explored.
2. Guidance should be included on the definition of new dwellings and where the policy requirements apply. For example, new dwellings created within existing commercial premises through permitted development rights, which in my view can target achieving the required carbon reduction and carbon futureproofing whilst highlighting obvious embodied carbon benefits.
3. Policy SI2 item B states that major developments 'Should' include a detailed energy strategy. Surely all major developments are required to provide a detailed energy strategy.
4. The information that energy strategies should contain (p328) items g, h, i, k and l are all significant items in their own right but have very limited guidance within the plan. For example, item k – proposals to minimise the embodied carbon in construction. This can be as simple as referring to construction types in the Green Guide to Specification or as complex as calculating the full lifecycle embodied carbon which is a very detailed consulting exercise in its own right.
5. The list referred to above will cloud the key purpose of an energy statement. The quality and deliverability of the guidance within the energy statement must be enhanced rather than clouded with the incorporation of all potential issues into the energy statement. For example:
 - a. There are schemes where the carbon reduction performance works on paper but not on site and as a result, systems are left not operating or not achieving the intended carbon reductions. Energy Statements should include a full operational viability assessment along with lifecycle information to prove that the systems are commercially viable against a number of potential operational scenarios (empty units and fluctuating fuel costs) AND where community heat systems are included, that the energy is available at an affordable cost, which should be less, including service charges, than a corresponding gas supply. How much less may need to be governed. Item l. within the list on page 328 & 329 does not provide anywhere near sufficient weight to this issue.

- b. The assessment of summer comfort is a separate exercise and both require separate consideration during the early stages of a project. Each should be undertaken and submitted as entirely separate and equally important submissions rather than being a chapter of an energy statement.
 - c. Item h requires monitoring for 5 years. This is very short term and long term monitoring can encourage continual improvement. I also believe that the GLA should provide a free monitoring system for voluntary use to ensure that a suitable monitoring system is available. More importantly, larger developments should report carbon for the life of the development.
 - d. Item k requires guidance to be provided and consideration to the value and longevity of the scheme. For example, can a higher embodied carbon be justified for a residential scheme employing high quality design, thermal mass and a long (indefinite?) lifespan compared to a commercial development in a commercially important location with a lifespan of 20 to 40 years.
6. Developments of 10 homes or more that are in the heat network priority areas (the majority of the GLA built environment) are required to have communal heating systems (Policy SI3-D1). Yet only those where a heat network is planned but not yet in existence are to make allowance for future connection (Policy SI3-D3).
 - a. This suggests that there will be no new heat networks other than those currently planned.
 - b. By requiring smaller projects (say 10 to 50 dwellings) to use communal heating systems which will predominantly feature gas low nox boiler heat generation (until such times as water to water heat pumps are commercially proven) there will be greater carbon emissions overall due to the summer heat losses. This in turn impacts summer comfort and increases summer emissions associated with retrofit and portable cooling devices.
 - c. Where heat networks are not planned, developments should be given more flexibility to explore alternative options. As an example, a residential development with well-designed integration of individual heat pumps can achieve similar carbon reductions whilst aligning future carbon reductions to the decarbonisation of the grid. Such strategies can result in a lower cost of installation and better use of the site (no energy centre) and it is important that savings associated with not providing the communal heating must be used to further improve fabric.
 - d. SAP2016 currently proposes to be 'more realistic' with community heating efficiency. It will prove much more difficult in future to meet carbon reduction targets via the use of gas boiler systems alone.
 - e. Communal heating schemes are most viable where CHP is employed. Considering the air quality policies, CHP will be less viable and thus the associated carbon reductions will not be achieved resulting in reduced viability for communal energy schemes.
7. Policy SI4 and associated guidance now refers to TM59 for dwellings and TM52 for non-dwellings. It should be noted that TM59 provides guidance on the modelling of dwellings and does not replace or supersede TM52. Indeed, it still uses the analysis method prescribed in TM52 for the results. Section 9.4.5 suggests that TM59 and TM52 contain criteria for Dwellings and Non-Dwellings respectively which is incorrect. Effectively, TM52 is the analysis methodology, TM59 provides guidance on undertaking the simulations for dwellings for subsequent analysis using TM52. There is not a TM59 equivalent for non-dwellings.
8. References to air conditioning should consider the use of the term 'comfort cooling', which is the correct term for general cooling systems where humidity and air quality are not controlled.

9. My experiences of applying TM49 and TM59 to date is that any summer comfort study undertaken correctly will result in some room failures due to the more extreme weather files having periods of external ambient temperatures over 35°C. During these times there is limited passive cooling available through ventilation and as such developments will be required to include comfort cooling which is not desirable. **Some** daytime failures against the extreme weather files of TM49 should be permitted to reduce a potential reaction to install cooling as occupants can make conscious decisions about the rooms they use or whether they leave the dwelling (unless the dwelling is assisted living or for infirm). Night time failures should not be permitted with consideration to the much increased health implication of loss of sleep. Guidance should therefore be prescribed to local authorities to assist in the interpretation of the results to prevent more widespread application of comfort cooling.
10. My final comment relates to Policy SI5 item C2. I suggest this needs clarifying as it is vague. E.g. 'BREEAM water efficiency minimum standard for Excellent shall be achieved, even when no or a lower BREEAM level is required'.

Yours faithfully,

Darren Coppins