



STATEMENT OF COMMON GROUND FOR BUILDING REGULATIONS REVISION C

Based on the application (APP/E0345/W/21/3289748), the appeal Inspector has requested a Statement of Common Ground to address the changes to the new Building Regulations against the submitted proposals for the Reading Station Park scheme. This also potentially assists in understanding the extent to which upcoming changes to the Building Regulations requirements might overcome some sustainability matters raised by Mr Crawshaw.

Not all of the concerns raised by Mr Timothy Crawshaw can, however, be addressed with the new Building Regulations, but with regards to energy, ventilation, and overheating, the upcoming changes will affect some of the issues. Furthermore, under section 02 we have also addressed the concern raised with regards to daylight and sunlight by Mr Crawshaw.

Section 01

From 15th of June 2022 the following Building Regulation documentation will be implemented:

- Building Regulation Part L Conservation of fuel and power – Volume 1 (residential);
- Building Regulation Part L Conservation of fuel and power – Volume 2 (commercial);
- Building Regulation Part F Ventilation – Volume 1 (residential);
- Building Regulation Part F Ventilation – Volume 2 (commercial);
- Building Regulation Part O Overheating; and
- Building Regulation Part S Infrastructure for the charging of electric vehicle.

Some of the key changes under Part L are listed below:

- a) The following parameters need to be met or bettered for residential and commercial developments:

**Part L Approved Document Volume 1:
Dwelling**

- Dwelling Primary Energy Rate
(kWh_{PE}/m² per annum)
- Dwelling Emission Rate
(kgCO₂/m² per annum)
- Dwelling Fabric Energy Efficiency Rate
(kWh/m² per annum)

**Part L Approved Document Volume 2:
Building other than dwelling**

- Building Primary Energy Rate
(kWh_{PE}/m² per annum)
- Building Emission Rate
(kgCO₂/m² per annum)

Building Primary Energy Rate is a new requirement and needs to be implemented for the Reading commercial scheme.

- b) With the de-carbonation of the electricity grid, future electricity use will become more sustainable and involve fewer carbon emissions than would be previously have been involved where energy was principally generated by non-renewable methods. The assessed energy impacts for both residential and commercial schemes will therefore

Commented [AA1]: Tim Crawshaw comments 4/5/22 – The changes to the Building Regulations performance standards will be applied to the scheme as proposed and defined by the Parameter Plan and the mandatory elements of the Design Code. This has not changed, and the re-iteration of the proposed changes, in whatever detail provided, does not change the fact that the development has been designed without reference to the potential of the site and layout to contribute to fabric energy efficiency. This could result in an excess use of materials, technology or design consequences that may impact on the aesthetics of the scheme of additional resource consumption. For these reasons I do not agree that the proposed reliance on the Building Regulations is acceptable.



become increasingly less impactful as the electricity grid becomes increasingly supplied by renewables sources of energy generation.

- c) The limiting U-Values have been updated for both residential and commercial developments which is an improvement from the U-Values currently used for the submitted developments.

Some of the key elements of changes under Part F are listed below:

- a) Under the Part F for residential (Volume 1) schemes, the minimum ventilation rate per bedroom and the background ventilation has increased. The current residential scheme will be updated to meet this requirement.
- b) The commercial (Volume 2) for Part F now has a requirement for CO₂ monitoring and ventilation to be provided for common parts which enhances the air quality within the commercial premises. The current commercial scheme will be updated to meet this requirement.

Some of the key elements of changes under Part O are listed below:

- a) Building Regulation Part O for overheating is a new addition to the regulations which covers residential developments. The guide sets out parameters of acceptable temperatures, opening (window) limitations based on hour of the day and how accessible the opening is to mitigate overheating on residential properties.
- b) This overheating assessment need to be submitted to Building Control for approval.

The overheating assessment will be carried out of the residential scheme.

Some of the key elements of changes under Part S are listed below:

- a) The number of associated parking spaces that have Electric Vehicle Charging (EVC) must be the total number of associated parking spaces where the number of spaces is less than the number of dwellings.
- b) Every 10 commercial car parking space should be provided with one EVC space and future extension to be also provided as part of compliance.

The compliance with Part S will be set out within the detailed planning stage if permission is granted on the outline scheme

Section 02

The illustrative scheme has taken into account an assessment of daylight and sunlight as explained below:

- c) Building orientation and the desire for taller residential buildings to occupy a N-S axis is referred to in the Reading Tall Building Strategy at paragraph 6.4.
- d) The basic plan organisation of the 4 building plots in the scheme reflects the RSAF guidance document, which calls for N-S axis layout.

Commented [AA2]: Tim Crawshaw comments 4/5/22 – The U-Values (not stated or updated) are a secondary consideration after the fabric energy efficiency measures have been considered and undertaken. The primary concern stated in my PoE is that the energy hierarchy has not been correctly applied and as the U values is only a part of the wider fabric energy efficiency this does not meet concerns. For this reason I cannot agree that this approach is in line with the energy hierarchy.

Commented [AA3]: Tim Crawshaw comments 4/5/22 – The ventilation rate will be set by the building regulations, this is accepted, however this requires more certainty regarding how this will be achieved in terms of mechanical means of natural ventilation and the use of heat recovery. This demonstrates a lack of detailed consideration, and this post rationalisation does not address my concerns.

Commented [AA4]: Tim Crawshaw comments 4/5/22 – In terms of summer cooling, Part O will require an overheating assessment, and this will drive the approach to the technology required. Without an adequate understanding of the role of existing or proposed landscaping in reducing the localised summer cooling load, this may result in a different strategy. For this reason, I cannot agree with this proposed approach.

Commented [AA5]: Tim Crawshaw comments 4/5/22 – The north-south axis is accepted as a given in terms of the RSAF. However, just as with any site, opportunities should be taken to analyse the potential of natural resources of the site to contribute to fabric energy efficiency. If the n-s axis has been deemed to take precedence in design terms, there are still opportunities within this framework to ensure that every opportunity has been taken to maximise the contribution of sunlight and wind. It would be useful to understand the consequences of the n-s axis in comparison to other layouts as this could be demonstrated to the optimal and the buildings designed to respond better to the opportunities. In the absence of this the energy hierarchy is fundamentally undermined. Additionally, the n-s axis on the ground if accepted as a fix, does not necessarily define the upper floors in all cases. For these reasons I cannot agree with this approach.



- e) At 5.3 within the submitted DAS, and through the related diagrams, detail is set out as to how the plots might be extruded in order to create the best possible response to the sun path. That indicates how the need to optimise daylight into the development and minimise harm to neighbours has been taken into account in the design of the scheme.
- f) At 6.3 within the submitted DAS, evidence is set out as to the preliminary testing of proposed massing within a sun path model, tested at 21st March as directed by BRE.
- g) In the further detailed development of the illustrative scheme, the massing has been further developed to optimise daylight into the newly proposed development and at the same time minimise any off site over shading effects. This is why, for example, the massing varies along Vastern Road, falling below the benchmark heights suggested within the RSAF.
- h) The scheme has organised the massing to provide buildings that are varied in scale and spaced in response to an analysis of the sun path. By contrast, the Royal Mail scheme (consented) employs a tall and unbroken east-west block along the internal boulevard. The open spaces have been designed in response to the sun path, including the open space at block A, and the exit road between plots B and C. The gaps between A and B, and C and D, would be well lit in accordance with the BRE guidance.

By way of further illustration, the image below is an extract from the scheme's sunlight model which uses the accurate Revit model of the new buildings, a Z-map model of the context (accurate to +/- 400mm) and calculates the sun position and resultant shadows at 12 noon March 21st. shadow project illustrates the consideration given to sun path in the basic composition of the proposals.



Commented [AA6]: Tim Crawshaw comments 4/5/22 – The snapshot provided from the model is only at one time of the day. Mid-summer, at late afternoon, for example, would highlight those buildings at greatest risk of summer overheating and conversely (if prevailing wind were considered also) mid-winter at dawn in terms of glazed areas and heating loads. This demonstrates a lack of detailed understanding of the resources of the site and as such I cannot agree that this demonstrates the correct application of the energy hierarchy.

The Revit model provided does little to allay concerns regarding the analysis that has been undertaken. Given the level of detail possible it is self-evident that a proper analysis could have been undertaken that would lead potentially to a more optimised scheme in terms of massing, solid to void ratios, thermal mass, and shading. Summer overheating is an important consideration, and some properties may, because of the massing, have a reduced cooling load, this has not been fully considered and the application of standards to an already fixed scheme undermines the energy hierarchy. Therefore, I cannot agree that the energy hierarchy has been properly applied and such I cannot agree with this approach.