

BRE Client Report

Review of daylight and sunlight report for River Gate, 53-55 Vastern Road, Reading

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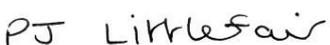
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Executive Summary

A planning application, reference 200188, has been submitted to Reading Borough Council for a proposal to redevelop 53-55 Vastern Road, Reading for a mixed use development. An assessment of the daylight and sunlight impact of the proposed development and daylight and sunlight provision to the new flats is contained in a report by Eb7, titled 'Daylight & Sunlight Report, River Gate, 53-55 Vastern Road, Reading' and dated 19th December 2019. BRE have been commissioned by Reading Borough Council to evaluate this report. The evaluation was to review the scope, methodology, text and conclusions of the report, but not verification of the calculations.

The Eb7 report evaluates loss of daylight and sunlight to existing properties using the BRE Report 'Site Layout Planning for Daylight and Sunlight, a guide to good practice'. This source is appropriate and is widely used by local authorities to help determine planning applications. The guidance is advisory in nature and is intended to assist with good design. There is no formal requirement to comply with the advice it contains. The BRE Report states that its own numerical guidelines 'should be interpreted flexibly since natural lighting is only one of many factors in site layout design. In special circumstances the developer or planning authority may wish to use different target values.'

The existing residential properties most likely to be affected by the proposals have been assessed. Other nearby residential locations would be less affected.

42 windows at 2-28 Lynmouth Road would have a loss of daylight characterised as minor adverse. Some of these are secondary windows, and some of the losses would be only marginally outside the guidelines. The windows affected are principally on the end of the rear additions, with some on the main rear elevations. Number 2 and number 24 are more affected than the other properties in the terrace and would have larger losses of light which could be characterised as major adverse. These have overhangs which limit the amount of daylight they can receive, which would be a mitigating factor.

There would be losses of winter sunlight outside the guidelines to three properties in the terrace. We would consider the impact on sunlight to be minor adverse.

There would be a minor adverse loss of daylight to just one window at 6 Lynmouth Court. Loss of sunlight would be within the guidelines.

7-12 Lynmouth Court is the building which would be most affected by the proposals. This building would have a moderate adverse loss of daylight. Some of the rooms have less affected windows on other elevations, which would be a mitigating factor. Loss of sunlight would be largely within the guidelines.

51 Vastern Road would have a minor to moderate adverse impact to windows on its side elevation. However, drawings submitted as part of a recent planning application suggest that none of them are main windows lighting habitable rooms which would be covered by the BRE guidelines.

Gardens at 2, 4 and 8 Lynmouth Road, and at 3 Lynmouth Court, would have a loss of sunlight outside the guidelines. The losses would be major for 2 Lynmouth Road, moderate for 4 Lynmouth Road and 3 Lynmouth Court, and minor with mitigating factors for 8 Lynmouth Road. 2 Lynmouth Road would be particularly affected. It would lose all of its area capable of receiving the recommended amount of sunlight, though the garden is small and has walls around it which limit sunlight.

There are some living rooms within the proposed development which would have average daylight factors well below the recommended minimum, going as low as 0.3%. These will be extremely gloomy, particularly in the cases where they would not receive any sunlight either. In some cases, the windows are



subject to low levels of external obstruction and the poor daylighting is therefore a consequence of the development's own design.

We disagree that the very poor results should be accepted as isolated deviations and suggest that the design should be revisited to see if rooms which fall well short of the recommended amount of daylight can be improved through measures such as changes to window design or room arrangement.

Some south facing windows in Block A fall only marginally short of the recommended amount of daylight, but their design renders them vulnerable to substantial future loss of light from an emerging development proposal for the Vastern Road retail park. Where an increase in future obstruction is likely, the design could protect the future occupants by not rendering their windows dependent on an area of the sky which is likely to be blocked, for example by providing additional glazing which is not located underneath a balcony.

74% of the living rooms in Block A, 52% of Block BC, 42% of Block D and 68% of Block EFG would have a window facing within 90° of due south. Blocks D and EFG have living rooms with views of the River Thames, which is likely to be equally acceptable. Living room windows facing within 90° of due south generally receive the recommended amount of sunlight. The exception is ground floor windows in Block EFG, which are heavily obstructed by other blocks in the development.

All of the amenity areas in the proposed development would receive the recommended amount of direct sunlight.



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1 Introduction

- 1.1.1 A planning application, reference 200188, has been submitted to Reading Borough Council for a proposal to redevelop 53-55 Vastern Road, Reading for a mixed use development. An assessment of the daylight and sunlight impact of the proposed development and daylight and sunlight provision to the new flats is contained in a report by Eb7, titled 'Daylight & Sunlight Report, River Gate,53-55 Vastern Road, Reading' and dated 19th December 2019.
- 1.1.2 BRE have been commissioned by Reading Borough Council to evaluate this report. The evaluation was to review the scope, methodology, text and conclusions of the report, but not verification of the calculations. This report gives the results of the evaluation.
- 1.1.3 A site visit was not carried out, but we have some familiarity with the location from previous site visits in the locality.

2 Evaluation criteria

2.1 Loss of light to existing dwellings

- 2.1.1 The Eb7 report evaluates loss of daylight and sunlight to existing properties using the BRE Report 'Site Layout Planning for Daylight and Sunlight, a guide to good practice'¹. This source is appropriate and is widely used by local authorities to help determine planning applications. The guidance is advisory in nature and is intended to assist with good design. There is no formal requirement to comply with the advice it contains.
- 2.1.2 The BRE Report states that its own numerical guidelines 'should be interpreted flexibly since natural lighting is only one of many factors in site layout design. In special circumstances the developer or planning authority may wish to use different target values. For example in a historic city centre a higher degree of obstruction may be unavoidable if new developments are to match the height and proportions of existing buildings'.
- 2.1.3 The National Planning Policy Framework² states that authorities should take a flexible approach in applying policies or guidance relating to daylight and sunlight where they would otherwise inhibit making efficient use of a site (as long as the resulting scheme would provide acceptable living standards).
- 2.1.4 The guidelines apply to rooms where daylight is required, including living rooms, kitchens and bedrooms. Toilets and bathrooms are not included.

2.2 Loss of daylight to windows

- 2.2.1 To assess the impact on the amount of diffuse daylighting entering existing buildings, and sunlight where relevant, the Report first recommends the measurement or calculation of obstruction angle. This is the angle to the horizontal subtended by the new development at the centre of the lowest window in each affected window wall, in a plane perpendicular to it. If this angle is less than 25° for the whole of the development, then the new building would not have a substantial effect on the diffuse skylight (or sunlight) enjoyed by the existing building.

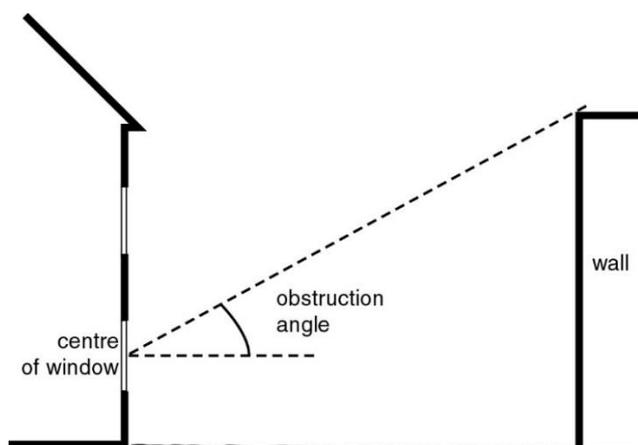


Figure 1 Example of obstruction angle



- 2.2.2 Where the obstruction angle exceeds 25°, a calculation is needed to assess the impact on the amount of diffuse daylighting entering existing buildings. The Report recommends the calculation of the vertical sky component (VSC). This is the ratio of the direct sky illuminance falling on the outside of a window, to the simultaneous horizontal illuminance under an unobstructed sky. The standard CIE Overcast Sky³ is used and the ratio is usually expressed as a percentage. The maximum value is almost 40% for a completely unobstructed vertical wall. The vertical sky component on a window is a good measure of the amount of daylight entering it.
- 2.2.3 The BRE Report sets out the following two guidelines for vertical sky component:
- Where the vertical sky component at the centre of the existing window exceeds 27% with the new development in place, then enough sky light should still be reaching the existing window.
 - Where the vertical sky component with the new development is both less than 27% **and** less than 0.8 times its former value, then the area lit by the window is likely to appear more gloomy, and electric lighting will be needed for more of the time.
- 2.2.4 The guidelines describe losses in terms of ratio as VSC (and also annual probable sunlight hours) are themselves percentage values. The Eb7 report describes losses of VSC in terms of percentage, with a 20% loss being equivalent to a ratio of 0.8. To avoid confusion, in this report we will discuss losses in the same terms as the Eb7 report. If we refer to an actual value of VSC, we will place the percentage symbol in brackets.
- 2.2.5 Average daylight factor (ADF) is not generally recommended for use in assessment in loss of daylight by the BRE Report. There are some situations where meeting a set ADF target can be appropriate for loss of light, for example where the existing building is proposed but not built. In this scenario, the incoming residents would not have the opportunity to become accustomed to the original levels of daylight. This would not apply to the properties which have been assessed in this case, and the ADF results provided for them cannot be considered in the context of the guidance in the BRE Report. Additionally, as ADF calculations require information on room dimensions and these have been estimated, the results would be subject to considerable inaccuracy.
- 2.2.6 There are some neighbouring properties which are proposed and not built in this case; the design and access statement discusses emerging plans for the Vastern Retail Park to the south of the site, and for the Royal Mail sorting office behind that. As these proposals have not reached the point of seeking planning consent, we would not expect loss of light to them to be considered. However, the proposed development should allow for potential future loss of light to its own rooms arising from these developments in its design. This will be discussed further in the section on daylight provision.

2.3 Daylight distribution

- 2.3.1 Where room dimensions are known, the BRE Report also gives guidance on the distribution of light in the existing buildings, based on the areas of the working plane which can receive direct skylight before and after. If this area is reduced to less than 0.8 times its value before, then the distribution of light in the room is likely to be adversely affected, and more of the room will appear poorly lit.



- 2.3.2 Daylight distribution assessment is only recommended by the BRE Report where room layouts are known. Calculations based on estimated room dimensions are liable to considerable inaccuracy, and in these circumstances, we would place more reliance on results for the windows.
- 2.3.3 However, the Eb7 report has provided room uses at 4, 10, 16 and 20 Lynmouth Road, which suggests that room dimensions are known for those properties. These will provide a reasonable guide to room layouts in other parts of the terrace, and we would therefore have more confidence in the daylight distribution results than if no room uses were known. Room uses are also provided for 51 Vastern Road. Daylight distribution results for Lynmouth Court are more uncertain.

2.4 Loss of sunlight to windows

- 2.4.1 The BRE Report recommends that loss of sunlight should be checked for main living rooms of dwellings, and conservatories, if they have a window facing within 90° of due south.
- 2.4.2 According to the BRE Report, if the centre of the window can receive more than one quarter of annual probable sunlight hours, including at least 5% of annual probable sunlight hours (APSH) in the winter months between 21 September and 21 March, then the room should still receive enough sunlight. If the window already receives less than this, a reduction to less than 0.8 times its current value and a reduction of more than 4% of annual probable sunlight hours over the year may lead to the room it serves appearing colder and less cheerful and pleasant.
- 2.4.3 Although the Eb7 report describes losses of VSC in percentage values, it describes losses of sunlight as ratios in the same format as the BRE guidelines.
- 2.4.4 All of the windows facing within 90° of due south have been assessed for loss of sunlight. This is appropriate when room uses are not known.

2.5 Daylight and sunlight provision to proposed dwellings

- 2.5.1 Daylight and sunlight provision to the proposed properties is normally evaluated using British Standard 8206-2:2008 'Code of Practice for Daylighting'⁴ and supplementary guidance in the BRE Report.
- 2.5.2 The Standard contains guidance on daylight and sunlight for new dwellings, including recommended minimum values for Average Daylight Factor (ADF) and Annual Probable Sunlight Hours (APSH).
- 2.5.3 The Standard has recently been withdrawn following the publication of BS EN 17037:2018 'Daylight in buildings', but it is likely that assessments using BS 8206 Part 2 will still be submitted for some time as projects which were underway at the time of the change are completed. The guidance in the BRE Report has not yet been revised and still refers to BS 8206 Part 2. We would therefore consider it reasonable for applicants to continue to submit assessments using BS 8206 Part 2 at this time.

2.6 Daylight provision

- 2.6.1 For daylight provision in new dwellings, the British Standard recommends the following minimum values for ADF:
- Bedrooms 1.0%



- Living rooms 1.5%
- Kitchens 2.0%

2.6.2 These are minimum values. The Standard states that if a space has an ADF of 5% it will not normally need supplementary electric lighting provided the uniformity is satisfactory, and that an ADF of 2-5% will normally need supplementary electric lighting.

2.6.3 Where a room has a shared use, the British Standard states that the higher minimum value should apply. However, local authorities frequently accept the living room standard for a shared kitchen/living room on the basis that a small kitchen would not be considered a habitable room. We have considered an ADF of 1.5% or better to represent a pass in this review.

2.6.4 The average daylight factor is calculated using the formula

$$D = T W \theta M / [A(1 - R^2)] \quad \%$$

Where:

T = transmittance of glass – a typical value for double glazing might be 0.68.

W = net area of window glass (not including frames).

M = maintenance factor, allowing for effects of dirt. For a window in a suburban area without a significant overhang and which is cleaned regularly, this might be 0.96.

A = total area of indoor surfaces: floor + ceiling + walls including windows.

R = average reflectance of the area A. For a fairly light coloured room the BRE Report suggests a value of 0.5. Alternatively, individual reflectance values can be used. If individual reflectances are used, this assumes that those light coloured finishes will be used and maintained in the rooms. For other developments, where the applicant does not have control over the choice of interior wall finishes, use of the standard 0.5 is most appropriate.

θ = visible sky angle, measured from the centre of the window in the vertical plane normal to the window. This must be expressed in degrees. The BRE Report 'Site layout planning for daylight and sunlight: a guide to good practice', Appendix C, gives a method to calculate an equivalent θ from the vertical sky component where obstructions are discontinuous.

2.6.5 The stated window transmittance value provided in the Eb7 report is reasonable. The maintenance factor used has not been provided. The interior reflectance values are those quoted in BS 8206 for surfaces in pristine condition and do not allow for normal build up of interior dirt. The results are therefore likely to overestimate the ADFs actually achievable in practice.

2.7 Sunlight provision

2.7.1 For sunlight, BS 8206-2 recommends that interiors where the occupants expect sunlight should receive at least 25% of annual probable sunlight hours, including at least 5% in the winter months between 21 September and 21 March. This would normally be the main living room of a dwelling.

2.7.2 The sunlight guidance applies to living rooms of all orientations, although a north facing room would not be expected to receive the recommended amount. Eb7 have only assessed living rooms facing within 90° of due south. This is not unreasonable, but it means that living rooms on



other elevations can only be assumed to not receive the recommended amount of sunlight when a window facing just north of west might still receive an appreciable amount.

2.8 Overshadowing

- 2.8.1 For outdoor amenity areas, the 2011 edition of the BRE Report 'Site layout planning for daylight and sunlight: a guide to good practice' recommends that at least half of the space should receive at least two hours of sunlight on 21 March. Sunlight at an altitude of 10° or less does not count.
- 2.8.2 If as a result of new development less than half of an existing garden or amenity area receives two hours of sunlight and the area that does is reduced to less than 0.8 times its former value, then the loss of sunlight is likely to be noticeable.

3 Loss of daylight and sunlight

3.1 Properties assessed

3.1.1 The proposed buildings and the neighbouring residential properties are shown in Figure 2 below, reproduced from the Eb7 report.



Figure 2 Proposed site layout. Copyright Eb7.

3.1.2 The existing residential properties most likely to be affected by the proposals have been assessed. Other nearby residential locations would be less affected.



3.2 2-26 Lynmouth Road

3.2.1 Loss of daylight

- 3.2.2 Numbers 2-26 Lynmouth Road lie to the west of the proposed development. Numbers 2 to 8 face the existing low rise building at the south end of the site. The higher numbers currently face a car park and therefore have limited levels of external obstruction. Unless the windows are obstructed by existing rear additions or overhangs, they generally have high VSCs.
- 3.2.3 According to Valuation Office Agency records, numbers 2 to 20 Lynmouth Road are single households. Numbers 22 to 26 have two properties at each address. These may have different interior layouts to numbers 2 to 20.
- 3.2.4 Over the terrace as a whole, 42 windows would have a loss of VSC characterised as minor adverse. Some of these are secondary windows, and some of the losses would be only marginally outside the guidelines, either retaining just below 27(%) of VSC or losing only just over 20% of the amount they currently receive. The windows affected are principally on the end of the rear additions, with some on the main rear elevations. Individual properties with larger losses are discussed in more detail below.
- 3.2.5 Changes in daylight distribution would be within the guidelines for most of the rooms in the terrace. Other rooms are discussed individually below.
- 3.2.6 Four ground floor windows of number 2 are particularly badly affected due to an overhang. There would be a major adverse impact on these windows, but largely as a result of its own design, which limits the amount of daylight these windows can receive from the higher part of the sky. In this type of circumstance, the BRE Report suggests that the calculation might be repeated with the overhang removed to see if the overhang is the main contributor to the loss. This has not been carried out, but the losses would be likely to be substantially lower without the overhang in place. Three of the rooms would also have a large change to their daylight distribution. We would agree with Eb7's comment that the reductions are actually small, but represent a large proportion of the daylight currently received because the existing levels are so low. The rooms are likely to already be dependent upon electric light.
- 3.2.7 The windows maps show two W1 window references at number 6. It is not clear which window is actually window 1, but it does not make a great deal of difference which window position it is as the losses for number 6 are similar to those for the rest of the terrace. There is also a second floor reference at the same address but no second floor windows are present on the window map.
- 3.2.8 Number 24 is more affected than other properties in the north end of the terrace. One of its ground floor windows would have a moderate loss of VSC and another a major loss. Two of the rooms would also have a moderate and major change to their daylight distribution respectively. Eb7 note that the windows are beneath an overhanging awning, which would limit the amount of daylight which can be received from the higher part of the sky. As with number 2, this could have been repeated without the contribution of the awning to check whether it is the main reason for the loss being outside the guidelines. However, given the results for the other houses on the terrace, it is likely that the losses without the awning taken into account would be similar to those for the neighbouring properties and minor adverse in scale.
- 3.2.9 Number 26 has one ground floor daylight distribution result outside the guidance which would be minor adverse and similar in size to the losses to the windows.



3.2.10 Number 28 would have two windows with larger proportional losses due to its proximity to Block EFG, but they had very high starting VSCs so even with the larger losses they would retain almost the recommended 27% of VSC. One ground floor room would have a moderate adverse change to its daylight distribution and three other rooms would have minor adverse changes.

3.2.11 Loss of sunlight

3.2.12 Eb7 have assessed all of the windows facing within 90° of due south, which is reasonable when room uses are not known.

3.2.13 The impact on sunlight to this terrace will depend upon the internal arrangement of the rooms. Parts of the development would lie to the south of the terrace, where they would block sunlight to windows at the rear of the property, particularly winter sunlight when the sun is lower in the sky. However, sunlight is generally assessed for main living rooms, and the windows affected may not necessarily light main living rooms. For numbers 2 to 20, the windows on the ground floor are most likely to light main living rooms. At numbers 22 to 28, which each contain two properties, there are likely to be living rooms on the upper floors as well.

3.2.14 Loss of year round sunlight would be within the BRE guidelines for all of the properties assessed at 2-28 Lynmouth Road.

3.2.15 Three properties would have a loss of winter sunlight outside the guidelines. These are summarised in Table 1 below.

Table 1 Loss of sunlight at 2-28 Lynmouth Road (GF – ground floor, 1F – first floor)

Property number	Room uses	Year-round sunlight	Winter sunlight impact
2	Not known	Loss within guidelines	One GF window and two 1F windows would lose most of what they receive, but one would retain just below the recommended amount.
8	Not known	Loss within guidelines.	GF W8/9 would lose around 2/3rds – these have the rear addition/conservatory as existing obstructions to the south. 1F W3 would have minor loss & retain just below the recommended amount.
12	Not known	Losses within guidelines.	Loss within guidelines for all windows except 1F W3 which would lose 2/5ths.

3.2.16 Winter sunlight can be difficult to provide in urban areas, where buildings block the lower parts of the sky.

3.2.17 We would therefore consider the impact on sunlight to be minor adverse.



3.3 5 & 6 Lynmouth Court

- 3.3.1 5 and 6 Lynmouth Court are the end properties of a block which faces south at the end of Lynmouth Road. They would be closest to block EFG of the proposed development, which would lie to the side of them.
- 3.3.2 Loss of both daylight and sunlight would be within the BRE guidelines for all of the windows analysed at number 5. This property is not considered further in this review.
- 3.3.3 At number 6, one ground floor window would have a loss of VSC which would be considered minor adverse. It would retain just below the recommended amount of VSC. Loss of sunlight would be within the BRE guidelines.

3.4 7 – 12 Lynmouth Court

- 3.4.1 7-12 Lynmouth Court are located in another building at the end of the terrace containing 2-28 Lynmouth Road. The east elevation would directly face block EFG. This building would be the most affected by the proposals.
- 3.4.2 All of the main windows on the east elevation would have a loss of VSC classed as moderate adverse. These losses are directly attributable to the proposed development. Although there are two windows on the second floor which would have much larger losses, these are secondary windows which would not be covered by the BRE guidelines. Another second floor window with a smaller loss is also a secondary window.
- 3.4.3 We agree with Eb7's comments that the presence of additional windows on other elevations or in bay windows would be a mitigating factor for the dual aspect room.
- 3.4.4 Changes to daylight distribution in the rooms would be of similar scale, although these are based on assumed room layouts. The exceptions are where the rooms are dual aspect and also have windows on the north elevation which would be less affected.
- 3.4.5 Changes to sunlight would be within the guidelines in most cases. One ground floor window would lose all of its winter sunlight, but would retain enough year round sunlight.
- 3.4.6 Eb7 state that the property has deep overhanging eaves, which lead to increased losses on the second floor. This could have been tested by repeating the calculations without the eaves.

3.5 51 Vastern Road

- 3.5.1 51 Vastern Road lies on the corner of Vastern Road and Lynmouth Road. Its east elevation would face block A across Lynmouth Road. Six windows in this elevation would have a loss of VSC outside the BRE guidelines, four on the ground floor, one on the first floor and one of the second floor. The losses would be minor to moderate adverse. Loss of sunlight would be within the BRE guidelines.
- 3.5.2 Valuation Office Agency records indicate that there is currently a flat on the first floor. At the time of writing there was no record of a ground floor flat and online streetview imagery shows a café on the ground floor. The recent planning history for the property includes some plans: a permitted development application reference 190692 for conversion of the upper floors to two flats and a planning application reference 191165 for conversion of the ground floor to two bedsits. The proposed room layouts for the latter are shown in Figure 3 below. The room layouts for the upper floors differ from those in the earlier permitted development application.



3.5.3 These room layouts, and the layouts in the existing plan submitted in the same application, suggest that the affected windows on the ground and first floors are either secondary windows with the main windows located on other elevations, or light stairwells. It therefore appears likely that none of the affected windows are covered by the BRE guidelines.

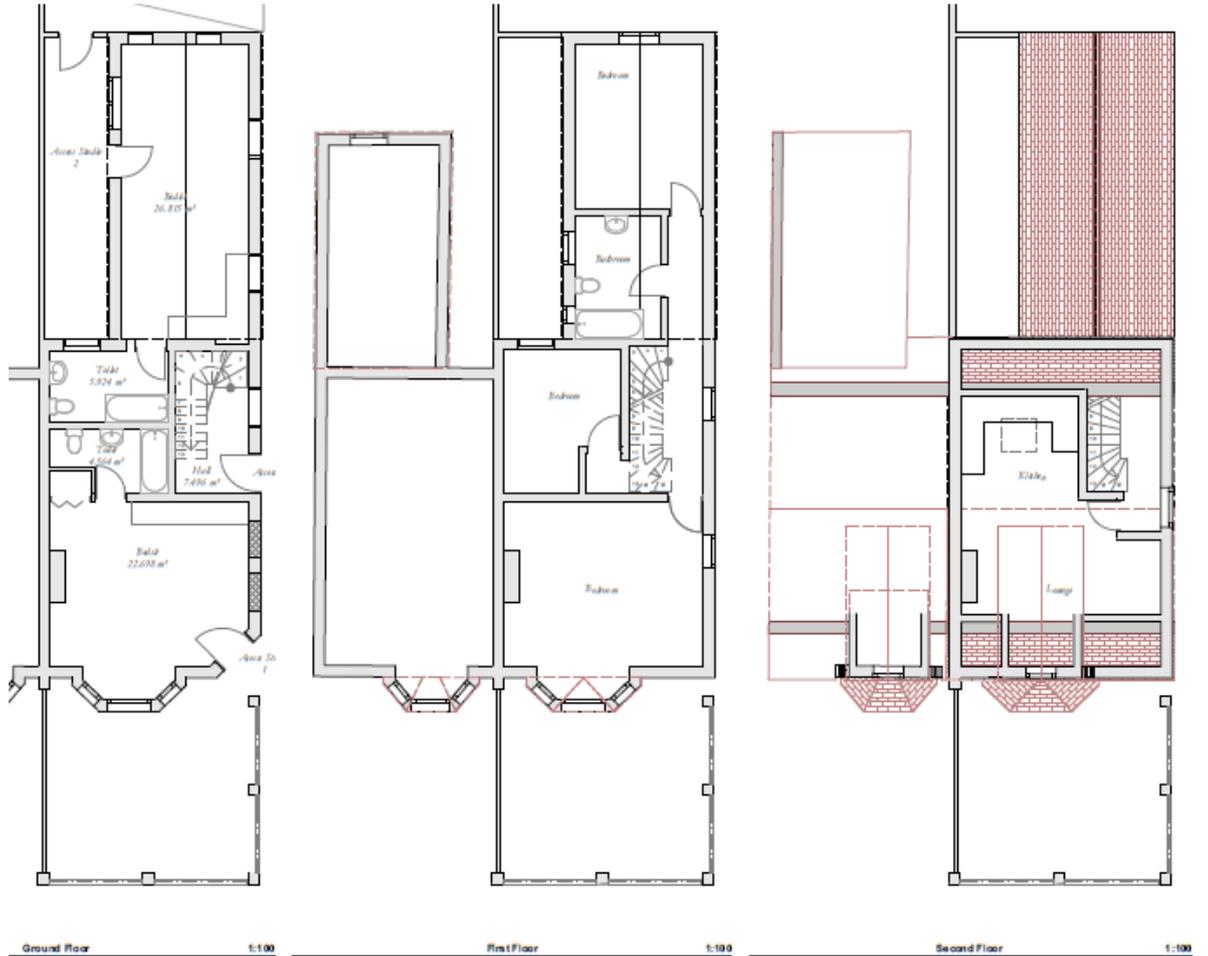


Figure 3 51 Vastern Road approved floor plans, from drawing PDM-06 Rev C by The Keen Partnership.



4 Daylight and sunlight provision

4.1 Locations analysed

- 4.1.1 Rooms on the lowest two residential floors of each proposed block have been analysed. This is a reasonable approach, as they would be expected to receive the least daylight and sunlight if room and window layouts are similar on each floor. In the case of Block D, this consists of the first and second floors, presumably as the ground floor is a non-residential use. For the other blocks, it consists of the ground and first floors.

4.2 Block A

- 4.2.1 Most of Block A would be well daylit and sunlit with the current levels of external obstruction. With the exception of the rooms discussed in the following paragraphs, average daylight factor would be well above the recommended minimum for the respective room types, and with the exception of one room, all of the living rooms would receive the recommended amount of year round and winter sunlight.
- 4.2.2 Living room A-24 on the first floor, see Figure 4 below, would have an ADF of 1.4%, just below the recommended minimum for living rooms. This is a large room facing south west with a balcony located above the window. This would normally be less of an issue as it is not unusual for a few rooms in a development to receive less daylight, the ADF would be only just below the guidelines and the balcony design gives the compensatory benefit of private amenity space. However, the concern is that at the moment the area opposite, Vastern retail park, is low rise, so the only limit on the daylight received by this room is the design of the development itself. This is anticipated to change. The design and access statement notes that there is an emerging development on the Vastern retail park site on the other side of Vastern Road. The developers of that site will also wish to make best use of their site and the levels of obstruction can therefore be expected to increase significantly in the future. If a room cannot receive enough daylight when it has very little external obstruction, it is likely to become significantly worse in the future. Windows with balconies above them can be expected to lose a larger proportion of their daylight if obstruction levels opposite them increase. This room is therefore vulnerable to a substantial future loss of light with its present design.



Figure 4 Block A first floor, ADF failure marked

- 4.2.3 The ground floor room below, which does not have a balcony rail in front of it, would receive just enough daylight with current levels of obstruction. The equivalent rooms on the upper floors would be expected to have similar results to the first floor. Whether they would be similarly affected by a development on the Vastern retail park site would depend on the height and proximity of the proposed buildings. Subject to other factors involved in site design, these rooms would benefit from some additional glazing which is not underneath a balcony to protect them from a disproportionate loss of daylight when Vastern retail park is redeveloped.
- 4.2.4 74% of the living rooms in Block A have a window facing within 90° of due south. This compares favourably with an equal distribution in each direction. The design of the block is effective at giving as many properties as possible the opportunity to receive sunlight.
- 4.2.5 Living room A-01 on the ground floor, see Figure 5 below, would receive just below the recommended amount of sunlight. It faces just within 90° of east and would have Block BC to the east of it. The equivalent rooms on upper floors would receive enough sunlight with current levels of obstruction. This individual result is probably reasonable given the room's orientation and position in the block.



Figure 5 Block A ground floor, sunlight failure marked.

4.3 Block BC

4.3.1 Seven living rooms on the ground and first floors of this block would not receive the recommended amount of daylight. Some of them would have extremely low ADFs. They are shown in Figure 6 and Figure 7 and considered individually below.

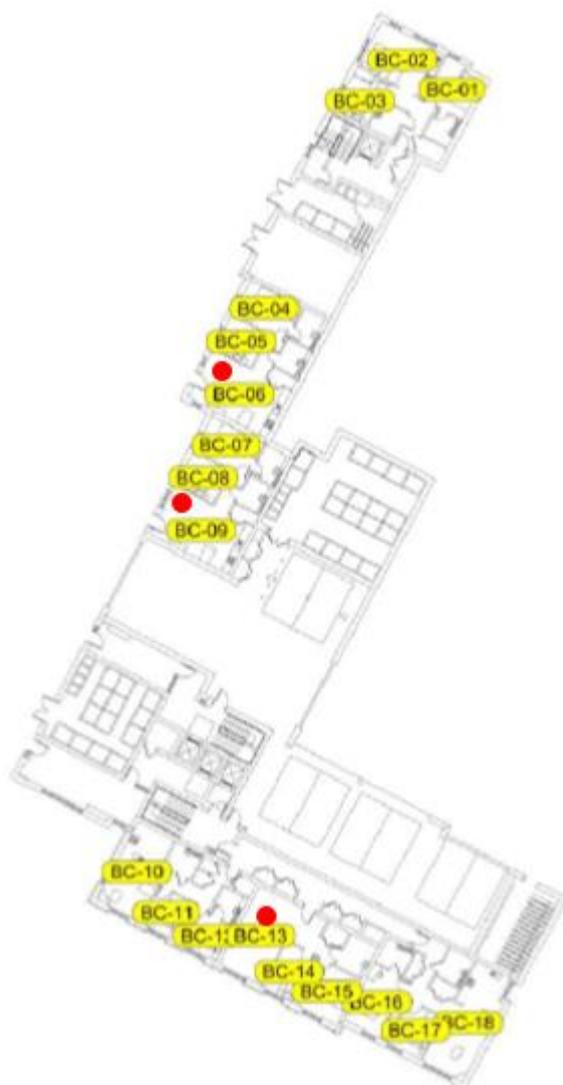


Figure 6 Block BC ground floor, ADF failures marked.

- 4.3.2 Living room BC-06 on the ground floor faces north west. It would have an extremely low ADF of 0.3%, where the recommended minimum for living rooms is 1.5%. This room would be very gloomy and need supplementary electric lighting almost all the time. Daylight provision to this room should be improved if at all possible. The equivalent room on the first floor would be better but would still fall well short at 1.0%. The main windows face the terrace of two storey houses on Lynmouth Road, and would therefore not be particularly obstructed externally; their poor levels of daylighting are therefore a consequence of their own design and the equivalent rooms on upper floors may well have the same issue. In particular, the ground floor room has a much narrower main window than the first floor room and has the potential for improvement subject to other site design factors. They both appear to have the potential for increased window area in their side elevation.



4.3.3 Living room BC-09, also on the ground floor and facing north-west, has a low ADF of 0.9%. This room is large for its window area. There appears to be some limited potential to increase window area but it is unlikely to be possible to bring this room up to a pass without loss of room area.

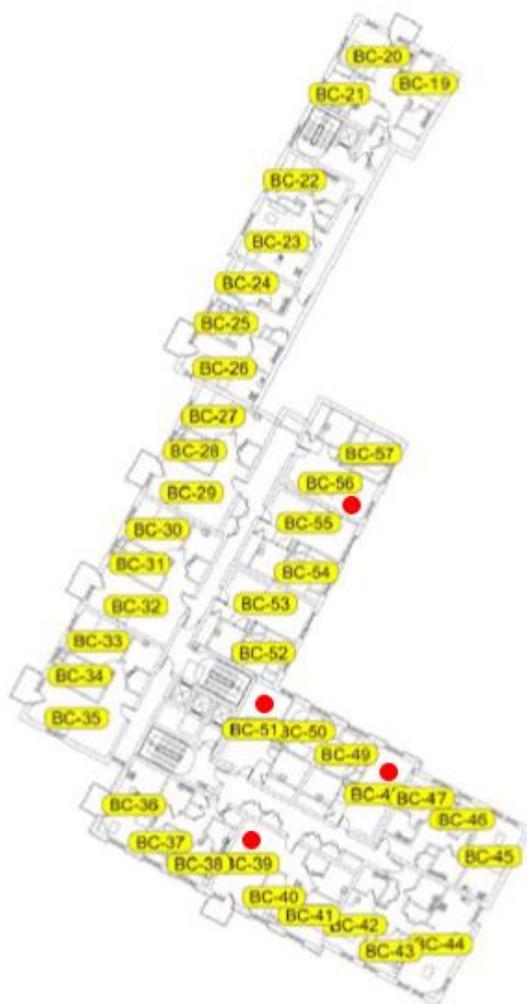


Figure 7 Block BC first floor, ADF failures marked

4.3.4 Living rooms BC-13 on the ground floor and BC-39 on the first floor face south west. BC-13 would have an ADF just below the recommended minimum for living rooms at 1.4%. BC-39 would be a lot lower at 0.8%. It has a large floor area for its window size, but it does have the compensatory benefit of private amenity space. These rooms are potentially vulnerable to loss of daylight due to the future development of Vastern retail park, but less so than the equivalent rooms under balconies in Block A as the retail park site is slightly to one side and block BC faces Station Shopping Park.

4.3.5 Living room BC-48 faces north east. It is important that north facing rooms are well lit as they will not have the benefit of sunlight in that position. The room has an ADF of 1.4%, just below the recommended minimum for living rooms. It does not have an overhead balcony limiting its overhead daylight, and so it does not have the compensatory benefit of private amenity space.



There is the potential for this window to be widened, particularly as it does not face south and will be less prone to overheating.

- 4.3.6 Room BC-51 also faces north east. It would have a very low ADF of 0.6%. It is set in the corner of the building so that the window is substantially obstructed to one side and the window is very small. There would be no compensatory outdoor benefit such as a balcony, and it would not receive any sunlight, so it would be a very gloomy space. The design has placed a large room with the greatest need for daylight in a position where it will receive the least. The result for this room should be improved if at all possible by altering the layout. Bedrooms are a better choice for building positions with limited prospect for daylight. On the higher floors, this location is occupied by a bedroom.
- 4.3.7 Room BC-56 would face south east. It would have an ADF of 1.2%, below the recommended value for living rooms. This room would have a reduced level of daylight, but without the compensatory benefit of private amenity space. It would receive the recommended amount of sunlight. Subject to other site design factors, there appears to be the potential to increase the size of this window.
- 4.3.8 52% of the living rooms in Block B would have a window facing within 90° of due south. A substantial number of living rooms will therefore not have the opportunity to receive sunlight, even though those which do have a window facing south east or south west would receive the recommended amount.

4.4 Block D

- 4.4.1 All of the habitable rooms analysed in this block would receive the recommended minimum amount of daylight and sunlight. This block has the best daylight provision of the four blocks.
- 4.4.2 Although only 42% of living rooms in the block would have a window facing within 90° of due south, many of those which would not, would have views of the River Thames instead, as this lies to the north of the site. This is likely to be prized and considered acceptable compensation for lack of sunlight.

4.5 Block EFG

- 4.5.1 68% of the living rooms in this block would have a window facing either south east or south west. Many of those which would not, would have views over the River Thames. The block therefore in theory provides good access to sunlight or an agreeable alternative. However, there are some very poor results on the lower floors, including low levels of sunlight despite a south east orientation.
- 4.5.2 Three ground floor rooms in this block, marked in Figure 8 below, would not receive enough of either daylight or sunlight. The individual rooms are discussed below.
- 4.5.3 Living room EFG-10 is dual aspect. It has a main window facing south east which is located underneath a balcony and a secondary window facing south west. It would have an ADF of 1.4%, just below the recommended amount for living rooms. It would receive the recommended amount of year round sunlight, but would receive just below the recommended amount of winter sunlight. The sunlight would be difficult to change due to the other buildings in the development presenting an obstruction to the south and east, and year round sunlight is more important. However, subject to other site design factors, the ADF could potentially be improved by increasing the glazing area.



- 4.5.4 Living room EFG-13 faces south east. It would be extremely poorly daylit. It is a large room for the size of its window and it would have an ADF of 0.3% against a recommended minimum for living rooms of 1.5%. It would also receive almost no sunlight, 3% of annual probable sunlight hours against a recommended minimum of 25%, and 2% of winter sunlight hours against a recommended minimum of 5%. It would be a very gloomy room which would need supplementary lighting almost all of the time. On higher floors, the rooms in the same position don't have the same problem as there is another window to the rear of the room. Daylight to this room should be improved if at all possible. It would be difficult to improve the amount of sunlight it receives as sunlight is obstructed by the other blocks of the development. This makes reasonable daylight provision even more important.
- 4.5.5 Living room EFG-18 also faces south east. It would have an ADF of 0.6% against a recommended minimum of 1.5% for living rooms. The room is large for its window size. There appears to be some limited potential for increased window area, but it is probably not possible to bring the daylight up to a pass without losing floor area or making very large changes to the design of the scheme. The window would also fall substantially short of the sunlight requirement, receiving 5% of APSH against a recommended minimum of 25%. Winter sunlight would be better, and only slightly below the recommended minimum.

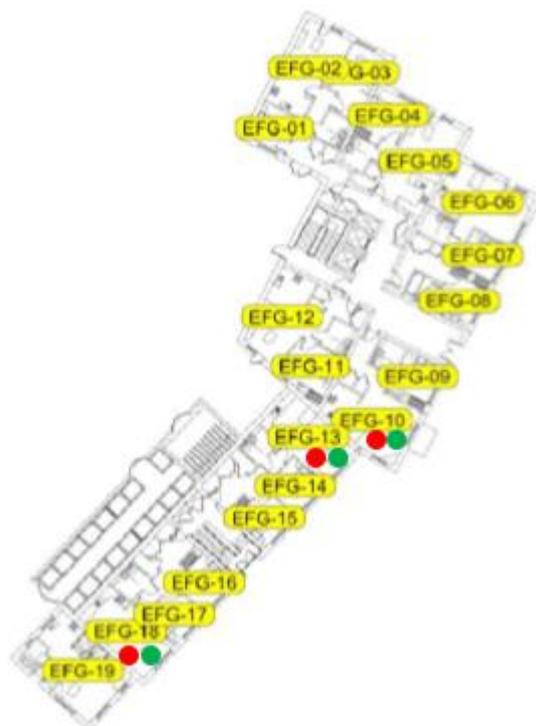


Figure 8 Block EFG ground floor, ADF (red) and sunlight (green) failures marked.

- 4.5.6 We disagree that the very poor results should be accepted as isolated deviations and suggest that the design should be revisited to see if their daylight and sunlight provision can be improved any further. The fact that other homes in the development would be better daylit would not provide any comfort to the people who live in the very poorly lit properties. In particular, 0.3% is an exceptionally low ADF which will provide very poor living conditions.



5 Overshadowing

5.1 Loss of sunlight to existing amenity areas

- 5.1.1 Four properties would have a loss of sunlight to their gardens which would be outside the BRE guidelines, shown below. The 3 Lynmouth Court location has been assumed based on the positions of 5 and 6 Lynmouth Court.
- Point 1 – 2 Lynmouth Road
 - Point 2 – 4 Lynmouth Road
 - Point 4 – 8 Lynmouth Road
 - Point 17 – 3 Lynmouth Court
- 5.1.2 2 Lynmouth Road already has less than the recommended 50% of its area receiving at least two hours of sunlight on 21 March. With the development in place, it would lose all of the remaining area and none of the garden would receive at least two hours of sunlight on 21 March. This would be a major adverse impact. The garden is small and has walls around it which limit sun.
- 5.1.3 At 4 Lynmouth Road, the garden currently receives the recommended amount of sunlight over just over half its area. It would lose just over a third of this area. This would be a moderate adverse impact.
- 5.1.4 At 8 Lynmouth Road, the garden currently receives the recommended amount of sunlight over fractionally below half its area. It would lose an amount which would be marginally outside the BRE guidelines. This would be a minor adverse impact. However, there is a garden building in the model which occupies a substantial part of the garden, reducing its area. Without this building, the loss would be within the guidelines, as it would be for the properties either side.
- 5.1.5 3 Lynmouth Court currently receives the recommended amount of sunlight over just under three quarters of its area. It is partly obstructed by the existing building to the south. It would lose just under half of the area currently receiving direct sunlight. This would be a moderate adverse impact due to the contribution of the building to the south.

5.2 Sunlight provision to proposed amenity areas

- 5.2.1 All of the amenity areas in the proposed development would receive the recommended amount of sunlight. Although there are areas which would be shaded, they are generally in paved circulation areas.

5.3 Transient overshadowing

- 5.3.1 The transient overshadowing drawings show the shadows cast at different times of the day. Areas which would be overshadowed by existing buildings or fences are shown in grey, and the green and blue shadows show additional shadowing as a result of the existing and proposed buildings respectively. The column on the right shows changes in the amount of shadowing, which is a very helpful set of images. It is sometimes difficult to see the leading edge of the shadow due to the amount of grey.



- 5.3.2 21 March is the date used in the sun on ground assessment in the BRE Report. On 21 March, the shadow from one part of the existing building on site falls over the gardens of the first four houses on Lynmouth Road but clears them by 10 am. The shadow from another part of the building then overshadows the first one or two houses again in the afternoon. Other houses in the vicinity are unaffected as the rear of the site is mainly occupied by car parking.
- 5.3.3 The proposed development would overshadow the whole terrace at Lynmouth Road, the gardens on Vastern Road to the west and 7-12 Lynmouth Court at 8 am. At 9 am the shadow would reach 1-6 Lynmouth Court. It would clear the middle of the terrace at Lynmouth Road by 10 am but would continue to overshadow Vastern Road, 2-6 Lynmouth Road, part of 7-12 Vastern Court and 1-6 Lynmouth Court. It would clear the Vastern Road gardens by 11 am and Lynmouth Court by 12 pm. 1-6 Lynmouth Road would continue to be overshadowed for the rest of the day, as they would be overshadowed by other buildings once the shadow of the development has cleared it late in the day.
- 5.3.4 Shadowing is also shown for 21 June. This would be the date of the year when there would be the least overshadowing. We would treat the start of the day as 8 am, although plots for 6 am and 7 am are provided. On this date, the existing buildings on site would not have any impact on neighbouring properties at all.
- 5.3.5 The proposed development would overshadow Lynmouth Court and parts of the Vastern Road gardens from 8 am. It would clear Vastern Road by 10 am and Lynmouth Court by 11 am. It would overshadow 2 Lynmouth Road from 2 pm and would clear by 4 pm.



6 Conclusions

- 6.1.1 The impact of the proposed development on neighbouring residential properties and daylight and sunlight provision to the proposed development has been reviewed using guidance in BRE Report 'Site layout planning for daylight and sunlight: a guide to good practice' and BS 8206 part 2.
- 6.1.2 42 windows at 2-28 Lynmouth Road would have a loss of vertical sky component characterised as minor adverse. Some of these are secondary windows, and some of the losses would be only marginally outside the guidelines. The windows affected are principally on the end of the rear additions, with some on the main rear elevations. Changes in daylight distribution would be within the guidelines for the most part. Number 2 and number 24 are more affected than the other properties in the terrace and would have larger losses of light which would be characterised as major adverse. These have overhangs which limit the amount of daylight they can receive, which would be a mitigating factor.
- 6.1.3 Loss of year round sunlight would be within the guidelines. There would be losses of winter sunlight outside the guidelines for three properties.
- 6.1.4 There would be a minor adverse loss of VSC to just one window at 6 Lynmouth Court. Loss of sunlight would be within the guidelines.
- 6.1.5 7-12 Lynmouth Court is the building which would be most affected by the proposals. This building would have a moderate adverse loss of daylight. Some of the rooms have less affected windows on other elevations, which would be a mitigating factor. Loss of sunlight would be largely within the guidelines.
- 6.1.6 51 Vastern Road would have a minor to moderate adverse impact to windows on its side elevation. However, drawings submitted as part of a recent planning application suggest that none of them are main windows lighting habitable rooms which would be covered by the BRE guidelines.
- 6.1.7 Gardens at 2, 4 and 8 Lynmouth Road, and at 3 Lynmouth Court, would have a loss of sunlight to their gardens which would be outside the guidelines. The losses would be major for 2 Lynmouth Road, moderate for 4 Lynmouth Road and 3 Lynmouth Court, and minor with mitigating factors for 8 Lynmouth Road. Number 2 would be particularly affected. It would lose all of its area capable of receiving the recommended amount of sunlight, though the garden is small and has walls around it which limit sunlight.
- 6.1.8 There are some living rooms within the proposed development which would have average daylight factors well below the recommended minimum, going as low as 0.3%. These will be extremely gloomy, particularly in the cases where they would not receive any sunlight either. In some case, the windows are subject to low levels of external obstruction and the poor daylighting is therefore a consequence of the development's own design.
- 6.1.9 We disagree that the very poor results should be accepted as isolated deviations and suggest that the design should be revisited to see if rooms which fall well short of the recommended amount of daylight can be improved through measures such as changes to window design. The fact that other homes in the development would be better daylight would not provide any comfort to



the people who live in these properties. 0.3% is an exceptionally low ADF which will provide very poor living conditions.

- 6.1.10 Some south facing windows in Block A fall only marginally short of the recommended amount of daylight, but their design renders them vulnerable to substantial future loss of light from an emerging development for Vastern retail park. Where an increase in future obstruction is likely, the design could protect the future occupants by not rendering their windows dependent on an area of the sky which is likely to be blocked, for example by providing additional glazing which is not located underneath a balcony.
- 6.1.11 Living room windows facing within 90° of due south generally receive the recommended amount of sunlight. The exception is ground floor windows in block EFG, which are heavily obstructed by other blocks in the development.
- 6.1.12 All of the amenity areas in the proposed development would receive the recommended amount of direct sunlight.



7 References

1. BRE, BR209 Site Layout Planning for Daylight and Sunlight: A guide to good practice, 2011
2. Ministry of Housing, Communities & Local Government, National Planning Policy Framework, July 2018.
3. Commission Internationale de L'Eclairage (International Commission on Illumination), CIE Standard 011/E:2003 Spatial distribution of daylight - CIE standard overcast sky and clear sky
4. BS8206 Part 2:2008 Lighting for Buildings, Code of Practice for Daylighting