JS LEWIS LTD

51 Fitzjohn's Avenue, Camden

Sunlight and Daylight Report

Planning Submission Report

November 2013

Fitzjohn Development Ltd

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1 INTRODUCTION

1.1 Scheme Description

This document has been prepared in support of the detailed planning application for the extension and alteration of 51 Fitzjohn's Avenue. The building is a block of 13 flats that is currently occupied. The submission scheme proposes an extension at lower ground floor level, a minor extension at the 5th floor level, and some internal reconfiguration internally of the existing block of flats. The alterations that will have an impact on the external aspects of the building are the extension and reconfiguration of the lower ground floor, and the minor changes made at 5th floor level.

For the purposes of sunlight and daylight, it is worth noting that the occupied envelope changes very little. The building shell and existing fenestration is largely retained as it is.

1.2 Requirement for Sunlight and Daylight Assessment

Pre-application discussions were held between the Council's planning department and the scheme architect, Oakley Hough. The formal pre-application response incorporated a number of comments under the heading 'Impact on Neighbouring Amenity'. These concluded that impact of the proposals on neighbours is not considered to be a problem.

Under the heading 'Standard of Proposed Accommodation', the following comments were made in the pre-application response:

1. "I am unconvinced that (the living areas to units 1 and 4) would receive a sufficient level of sunlight and daylight."
2. "The bedroom to unit 4 would have a very poor outlook and I don't consider it would receive sufficient levels of sunlight or daylight."
3. I consider bedroom 1 (of unit 3) would have a poor outlook…and am concerned with levels of sunlight and daylight to both (bedroom 1 and 2);
4. "…given the small window openings found to most bedrooms, I would advise the submission of a daylight and sunlight assessment demonstrating that all units would receive a sufficient level of daylight and sunlight."

1.3 Policy and Context Summary

Camden Planning Guidance document 6 (2011) sets out the Council's policies regarding amenity considerations for new developments. It notes the need for all dwellings to achieve adequate daylight and sunlight to support the activities taking place in the building.

Much of the sunlight and daylight chapter of the document focuses on the impact of new development upon existing buildings. This is broadly in line with the BRE document. Daylight and sunlight concerns are generally for those dwellings that are surrounding, and affected by, a proposed new development.

It should be noted that the impact on surrounding buildings of the proposals is negligible, and this has been accepted in the pre-application response from the Council.

For new buildings, the guidance notes that designs should provide where possible one window within 90 degrees of South, which will receive 25% of annual probable sunlight hours, and 5% between 21 September and 21 March.

1.4 Scope of Work

The scope of this report and the associated design input was to address the concerns raised in the pre-application response by considering the sunlight and daylight levels in accordance with policy and the relevant guidance, and to advise on opportunities for enhancing the performance of the scheme. The pre-application document raised concerns, and recommends studies into the following:

1. Sunlight and daylight levels to the living areas of units 1 and 4;
2. Sunlight and daylight levels in bedroom to unit 4;
3. Sunlight and daylight levels in bedrooms 1 and 2 of unit 3;
4. Sunlight and daylight assessment of bedrooms to other units at higher levels.

The drawings associated with the pre-application were reviewed to determine the extent of the calculations that would be required, with the following observations being made:

1. Sunlight is generally important in living areas, but not important in bedrooms;
2. Living/kitchen areas should be assessed as per recommendations;
3. The bedroom to unit 4 is extant and almost unchanged. The minor reduction in floor area actually increases the daylight value by inspection. No calculation required;
4. Unit 3 bedroom daylight value should be assessed;
5. Upper bedrooms are largely retained and do not require assessment to justify the extant situation. However the following bedrooms are new/significantly altered and require assessment:
    a. Unit 7 – beds 1 and 2;
    b. Unit 8 – beds 1 and 2;
    c. Unit 11 – bed 2 (same as unit 14 and 17 above);
    d. Unit 18 – bed 1;
    e. Unit 20 – beds 1 and 2;
    f. Unit 22 – bed 1.

A total number of 14 rooms that require analysis were identified therefore. The works undertaken were:

1. An assessment of the sunlight and daylight levels;
2. A review of options for improving values through design alterations;
3. Assessment of revised values;
4. Preparation of report for the planning application.

2 ASSESSMENT

2.1 Methodology

The Vertical Sky Component metric is typically used to determine the reduction in daylight achieved on an existing surface before and after development. As in this case there is no 'before', and no external impact that will affect this, the VSC metric is not applied.

The Average Daylight Factor is applied to address the actual daylight levels within each of the new or altered units that are highlighted by the Council in the pre-application response as areas of concern. The annual and winter sunlight hours were also calculated to determine whether adequate sunlight would be available.

The calculations were undertaken using the guidance and formulae from the following:

- Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice;
- BS 8206:2 (2008).

Plans, sections and elevations from the proposed scheme were used, in collaboration with a dialogue with the architect to ensure reasonable assumptions were being made. The criteria used for the study were:

- Recommended daylight criteria:
  - Living spaces to achieve an ADF of 1.5%
  - Bedrooms to achieve 1%;
- Recommended sunlight criteria:
  - Annual sunlight hours of 25% or more;
  - Winter sunlight hours of 5% or more.

2.2 Key Assumptions and Inputs

The initial calculations were run using default assumptions on room reflectance as follows:

1. Average room surface reflectance value of 0.5;
2. Average transmittance assuming double glazing throughout of 0.68;
3. Maintenance factor 0.92 noting urban location and assuming good management;
4. Window frame factors 0.7 from SAP 2009 assuming timber windows;
5. Full height windows split according to the methodology, and a default floor reflectance value of 0.15 used;
6. Theta values estimated using plans, sections and photography of surroundings from street view.

Once the initial calculations had been undertaken, rooms that demonstrated results that were below the recommended criteria were reviewed in consultation with the architect. Where design alterations were possible these were undertaken to improve values. Following these alterations, the calculations were redone and the final values achieved. Refinements included:

1. Alteration of window sizes;
2. Application of higher reflectance finishes, and as a consequence, the use of higher reflectance values using Reference Data within BS 8206:2:
   a. Walls – 0.81 (pale cream 10C31);
   b. Floors – 0.45 (light grey carpet);
   c. Ceiling – 0.81 – (pale cream 10C31).

2.3 Initial Design Measures

The living spaces to units 1 and 4 are lower ground level, and take their fenestration alignment from the upper floors as desired by the planning authority. The architect has designed in significant lightwells to allow the ingress of sunlight and daylight, and has created extensive glazed areas to the East wall of each to maximize the benefits of the lightwells. Much of the glazing elsewhere takes its lead from the existing building.

The orientation of the existing building creates fixed limitations on the orientation of the proposed new rooms and glazing.

2.4 Initial Results

2.4.1 Sunlight Hours

The available sunlight hours were calculated for the living spaces to units 1 and 4. These are the only two rooms where sunlight is an amenity consideration, as noted previously in this report. The calculations provided the following result:

Annual Probable Sunlight Hours

	Calculated	Guidance
Unit 1 Living	31.0%	25.0%
Unit 4 Living	27.0%	25.0%

Winter Probable Sunlight Hours

	Calculated	Guidance
Unit 1 Living	4.5%	5.0%
Unit 4 Living	4.5%	5.0%

The annual sunlight results were satisfactory, both being above the guidance level. The winter sunlight hours were very marginally short of the guidance level. Noting that the BRE guidance is clear that these threshold values should not necessarily be used as hard and fast rules, the level of performance should be deemed satisfactory what are highly constrained circumstances. The planning authority's concerns over sunlight availability should be allayed in light of these results.

2.4.2 Average Daylight Factors

The average daylight factors were initially calculated as follows, with those values on the boxes and red text calculated as being lower than the guidance:

Average Daylight Factor (before)

	Calculated	Guidance
Unit 1 Living	1.52	1.5
Unit 4 living	2.17	1.5
Unit 4 bed 1	0.74	1.0
Unit 3 bed 1	1.32	1.0
Unit 3 bed 2	0.23	1.0
Unit 7 bed 1	3.23	1.0
unit 7 bed 2	0.33	1.0
Unit 8 bed 1	0.35	1.0
Unit 8 bed 2	1.03	1.0
Unit 11 bed 2	0.66	1.0
Unit 18 bed 1	0.67	1.0
Unit 20 bed 1	0.96	1.0
Unit 20 bed 2	1.64	1.0
Unit 22 bed 1	3.59	1.0

7 of the rooms are not achieving the daylight factors recommended in the guidance document. All of these are bedrooms, where daylight is less important. Some of them are second bedrooms.

2.5 Design Implications and Alterations

The drawings were reviewed together with the opportunity to integrate high reflectance value finishes into the scheme, something which would be likely as a matter or course anyway. Two major changes involved altering the window sizes in Unit 8, bedroom 1, and unit 18, bedroom 1 to improve the daylight levels were possible, and were implemented.

The reflectance values were altered as previously noted for all of the units that fell short of the recommended levels:

1. Walls – 0.81 (pale cream 10C31);
2. Floors – 0.45 (light grey carpet);
3. Ceiling – 0.81 – (pale cream 10C31).

The improvement in the reflectance values will be translated into the final design and finish of the affected units.

2.6 Final Results

Accounting for the alterations noted above, the final average daylight factor results were as follows:

Average Daylight Factor (after)

	Calculated	Guidance
Unit 1 Living	2.16	1.5
Unit 4 living	2.17	1.5
Unit 4 bed 1	1.25	1.0
Unit 3 bed 1	1.32	1.0
Unit 3 bed 2	0.37	1.0
Unit 7 bed 1	3.23	1.0
unit 7 bed 2	0.54	1.0
Unit 8 bed 1	1.02	1.0
Unit 8 bed 2	1.03	1.0
Unit 11 bed 2	1.07	1.0
Unit 18 bed 1	1.97	1.0
Unit 20 bed 1	1.54	1.0
Unit 20 bed 2	1.64	1.0
Unit 22 bed 1	3.59	1.0

Further to the alterations, only two of the rooms do not achieve the recommended criteria, both of which are second bedrooms.

3 CONCLUSION

3.1 Impact on Existing Amenity of Surrounding Buildings

The surrounding buildings are not expected to be materially affected in sunlight and daylight terms by the proposed development, which is very positive.

3.2 Availability of Sunlight

The two living areas identified as possible concerns have been shown to receive comfortably more than the recommended annual sunlight hours. They both receive very nearly the recommended winter sunlight hours. The shortfall is very minor.

3.3 Average Daylight Levels

All living spaces and bedrooms receive the recommended daylight too, with the exception of Unit 3, bedroom 2, and Unit 7, bedroom 2. This result is also highly positive.

With regards to the two units that are not achieving the recommended values, the following observations are made:

1. Unit 3, bedroom 2;
    a. This unit would have performed significantly better with the original proposals issued to the local authority. However, the local authority raised concerns over the design of this unit and the spiral escape route, which effectively required a worse configuration in daylight terms;
    b. This unit is a second bedroom and is therefore of lesser importance than the primary bedroom. It is also more likely to be used as a children's bedroom where the exclusion of daylight is often the desired outcome;
    c. Daylight in bedrooms is less important from an amenity perspective than it is for living spaces;
    d. The unit will be available on the open market. The amenity considerations will therefore be judged by the final occupant.
2. Unit 8, bedroom 2;
    a. The daylight level is primarily driven by the proximity of the neighbouring dwellings, which the design cannot alter;
    b. The window and space is existing, and currently part of a deeper plan living space;
    c. This unit is a second bedroom and is therefore of lesser importance than the primary bedroom. It is also more likely to be used as a children's bedroom where the exclusion of daylight is often the desired outcome;
    d. Daylight in bedrooms is less important from an amenity perspective than it is for living spaces;
    e. The unit will be available on the open market. The amenity considerations will therefore be judged by the final occupant.

3.4 Recommendations

The proposed development has the opportunity to deliver more housing units than the building does in its current configuration and thereby make more efficient use of existing space. Its design has incorporated the following measures to minimise its adverse impact on amenity:

1. Sensitive design to avoid impacts on the sunlight and daylight to surrounding buildings;
2. Lightwells to the proposed living spaces to the Eastern façade at lower ground level;
3. Larger windows to units 8 an 18 to improve daylight levels;
4. High reflectance finishes to increase internal daylight levels.

The sunlight and daylight levels have been assessed. The sunlight availability to the lower ground units to the Eastern façade benefit from good lightwell design and achieve the recommended annual sunlight hours. The recommended winter sunlight hours are also very nearly achieved.

The daylight in all rooms assessed passes the recommended levels with the exception of two second bedrooms. The design does not offer opportunities to enhance the levels as they are primarily affected by the proximity of the adjacent dwellings.

The guidance documents focus mainly on the effect of new development on existing buildings, and stress that they are guidance only and should not be taken as absolute thresholds for pass or failure. With no impact on surrounding buildings, only two second bedrooms not meeting the recommended daylight criteria, and very minor shortfalls in winter sunlight only, the scheme demonstrates that it has been well designed, and performs very well overall in very constrained circumstances. It is therefore recommended that planning permission is not withheld on matters of sunlight and daylight.

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