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176 Prince of Wales Road

Daylight and Sunlight

Report

Overshadowing

• Daylight & Sunlight • Light Pollution •

Solar Glare • Daylight Design

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1 Executive Summary

1.1 This report has considered the potential daylight and sunlight effects to the surrounding residential properties as a result of the implementation of the proposed Farshid Moussavi Architecture scheme for 176 Prince of Wales Road.

1.2 The assessments contained within this report have been undertaken in accordance with the BRE report entitled 'Site layout planning for daylight and sunlight: A guide to good practice', more commonly known as "the BRE guidelines".

1.3 The report assesses the daylight and sunlight effects of the proposed scheme against the existing site conditions.

1.4 The results demonstrate that the daylight and sunlight effects to the vast majority of neighbouring properties meet the levels recommended in the BRE guidelines.

1.5 Overall, the development retains excellent levels of daylight and sunlight amenity to all neighbouring residential receptors and the results are deemed to fall within the practical application of the BRE guidelines.

2 Introduction

2.1 Point 2 Surveyors have been appointed to assess the potential daylight and sunlight effects to the surrounding properties

2.2 The site is located at 176 Prince of Wales Road in the London borough of Camden. The extents of the current site (drawing P1111-01 - 03) and proposed buildings (drawings P1111-04 to 06) can be seen in Appendix A.

2.3 The development proposals comprise the construction of a single storey extension to the middle and rear parts of the building, the excavation of a basement level below the existing rear and middle buildings and a series of internal and external alterations, to provide improvements to the existing gallery facilities.

2.4 The calculations in this report have been based on the latest Farshid Moussavi Architecture's 2D drawings. An image of the proposed scheme situated within our contextual model is demonstrated on Plate 01 below.

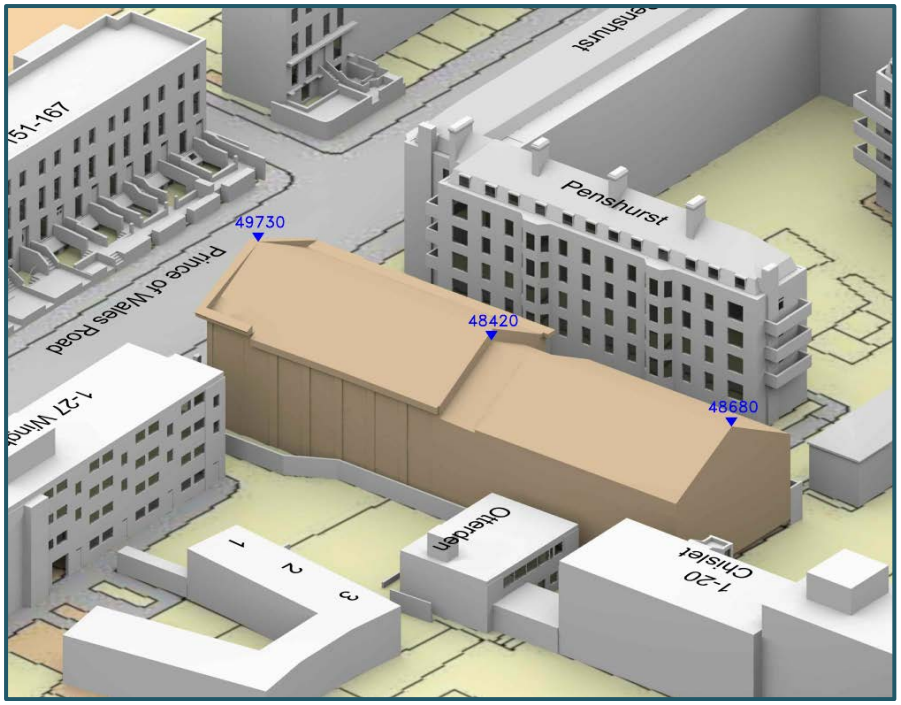

PLATE 01 – PLAN DEMONSTRATING THE FARSHID MOUSSAVI ARCHITECTURE'S SCHEME

3 Methodology

3.1 When assessing any potential effects on the surrounding properties, the BRE guidelines suggest that only those windows that have a reasonable expectation of daylight or sunlight need to be assessed. In particular the BRE guidelines at paragraph 2.2.2 state:

> *The guidelines given here are intended for use for rooms in adjoining dwellings where daylight is required, including living rooms, kitchens and bedrooms. Windows to bathrooms, toilets, storerooms, circulation areas and garages need not be analysed. The guidelines may also be applied to any existing non-domestic building where the occupants have a reasonable expectation of daylight; this would normally include schools, hospitals, hotels and hostels, small workshops and some offices.*

3.2 Further to the above statement, it is considered that the vast majority of commercial properties do not have a reasonable expectation of daylight or sunlight. This is because they are generally designed to rely on artificial electric lighting rather than natural light.

3.3 If a property is considered to have a reasonable expectation of daylight or sunlight the following methodology to assess the impacts has been used:

Daylighting

3.4 It is common to consider the basic principles advocated in the BRE guidelines to establish the basis for which consideration in relation to light should be approached. The following can be used as a quick test to assess the likely effect on existing surrounding properties:

a) Project a 25 degree line from the centre of the lowest window on the existing building;

b) If the whole of your new development is lower than this line then it is unlikely to have a substantial effect on the daylight enjoyed by occupants in the existing building.

3.5 The above test is also known as the 25° angle test but has not been used for this assessment as it does not reflect the differing heights and layouts of the buildings in the local area.

3.6 More detailed tests can be undertaken to fully assess the loss of daylight in existing buildings, in particular the use of the Vertical Sky Component (VSC) method of assessment.

> *The Vertical Sky Component is expressed as a ratio of the maximum value of daylight achievable for a completely unobstructed vertical wall. The maximum value is almost 40%. This is because daylight hitting a window can only come from one direction immediately halving the available light. The value is limited further by the angle of the sun. This is why if the VSC is greater than 27% enough sunlight [SIC] should be reaching the existing window. Any reduction below this level should be kept to minimum.*
>
> *Windows to some existing rooms may already fail to achieve this target under existing conditions. In these circumstances it is possible to accept a reduction to the existing level of daylight to no less than 80% of its former value.*

3.7 In summary to the above, a room is considered to continue to receive good levels of daylight if the window can receive a VSC of at least 27%. If the window receives a VSC below 27% in the existing scenario a reduction of less than 0.8 times its former value (20%), as a result of the proposed development, is considered acceptable.

3.8 In conjunction with the VSC tests, the BRE guidelines and British Standard 8206-Part2:2008 suggest that the distribution of daylight is assessed using the No Sky Line (NSL) test. This test separates those areas of the working plane that can receive direct skylight and those that cannot.

3.9 The BRE guidelines suggest that the daylight distribution test is undertaken to existing surrounding properties when the internal arrangements are known. To assess the impact of any reduction the BRE guidelines suggest:

> *If, following construction of a new development, the no sky line moves so that the area of the existing room, which does receive direct skylight, is reduced to less than 0.8 times its former value this will be noticeable to the occupants, and more of the room will appear poorly lit.*

Sunlighting

3.10 The amount of direct sunlight a window can enjoy is dependent on its orientation and the extent of any external obstructions. For example, a window that faces directly north, no matter what external obstructions are present, will not be able to receive good levels of sunlight throughout the year. However, a window that faces directly south with no obstructions will enjoy very high levels of sunlight throughout the year. As the potential to receive sunlight is dependent on a window's orientation, the BRE guidelines state:

> *To assess loss of sunlight to an existing building, it is suggested that all main living rooms of dwellings, and conservatories, should be checked if they have a window facing within 90° of due south. Kitchens and bedrooms are less important, although care should be taken not to block too much sun.*

3.11 To consider any sunlight effect to the surrounding properties the BRE guidelines suggest calculating the Annual Probable Sunlight Hours (APSH) at the centre of each window on the outside face of the window wall. The BRE guidelines suggest that:

> *If this window point can receive more than one quarter of APSH (see section 3.1), including at least 5% of APSH in the winter months between 21st September and 21st March, then the room should still receive enough sunlight.*

3.12 If the above criteria is not met, the BRE guidelines suggest calculating the APSH at the window in the existing situation, i.e. before redevelopment. If the reduction of APSH between the existing and proposed situations is less than 0.8 times its former value for either the total APSH or in the winter months; and greater than 4% for the total APSH, then the occupants of the adjoining building are likely to notice the reduction in sunlight.

3.13 In assessing the daylight and sunlight to the neighbouring buildings as well as assessing the quality of light within the proposed habitable rooms that make up the residential units, the true existing baseline condition has been observed. This includes all neighbouring buildings and obstructions within the vicinity that could be affected by the scheme proposal and or affect the potential for light entering into the proposed residential rooms within the scheme.

3.14 Trees and any other foliage have not been considered as part of the assessments as their size, shape, and density are impossible to predict. The BRE do recognise that certain tree types can be obstructive in allowing light penetration and further provide a transparency (% radiation passing) to apply within the calculation of daylight.

3.15 The obstruction produced by trees will in any event be blocking a certain view of the skydome and thus the actual impact produced by testing the changes in light (or view of the skydome) by the scheme can be slightly misleading given that in some instances no view of the existing and proposal will be prevalent and thus no recording of any alteration observed. The results are therefore a clear indication as to what would be available in the event that no trees were present and therefore what the worst case impacts would be by the implementation of the proposal.

4 Surrounding Properties

4.1 The BRE guidelines requires that only residential properties are assessed in terms of daylight and sunlight impacts.

4.2 The extent of the residential properties surrounding the site are highlighted in '*Blue'* on Plate 02 below.

PLATE 02 – PLAN DEMONSTRATING THE RESIDENTIAL (BLUE) AND COMMERCIAL (RED) NEIGHBOURING PROPERTIES

4.3 The key residential receptors in the vicinity of the site with a clear view of the proposed massing are as follows:

- Nos. 145, 147, 149, 151, 153, 155, 157 Prince of Wales Road
- Nos. 159-167, 169 and 171 Prince of Wales Road
- Penhurst, Prince of Wales Road, Penhurst, Queens Crescent , Penhurst, Marsden Street
- 1-20 Chislet
- Otterden
- Nos. 1, 2 & 3 Westwell
- 1-27 Wingham

4.4 The above properties have been tested by reference to the Vertical Sky Component (VSC) and No Sky Line (NSL) daylight assessments and the Annual Probable Sunlight Hours (APSH) sunlight assessment, in accordance with the BRE guidelines.

5 Assessment Results for Daylight & Sunlight to Neighbouring Buildings

5.1 The tabulated results of our daylight and sunlight impacts to neighbouring properties are attached in Appendix B.

5.2 The results demonstrate that all neighbouring windows (100%) that serve a habitable room (as opposed to an entrance or WC) would meet the BRE guidelines' recommended levels of VSC in that they would retain a VSC of 27 points or more or experience less than a 20% reduction with the introduction of the development.

5.3 In the case of the second daylight test, NSL, the results demonstrate that 361 out of 371 (97%) residential rooms would meet the BRE recommended levels in that they would experience less than a 20% reduction of their NSL value with the development in place. The 10 rooms that experience a greater effect are contained within the lower floors of the neighbouring Penhurst, Otterden and 1-20 Chislet buildings. It can be noted that 2 of these rooms are known to serve non-habitable rooms and can therefore be set aside in accordance with BRE guidelines. The remaining 8 rooms experience between a 27-42% reduction based on our assumed room layouts. Overall, the daylight effect to these rooms is considered negligible to minor by virtue of the VSC results, which fully comply with BRE guidelines.

5.4 For sunlight, the results demonstrate that 245 out of 250 south facing windows (98%) either meet or exceed the recommended levels of APSH. Of the remaining 5, it can be noted that 4 serve entrances and a bathroom and can therefore be set aside in accordance with BRE guidelines. There is 1 window located at 1-20 Chislet that experiences a reduction in APSH of 24%, marginally outside of the BRE recommended standard. The retained levels of APSH to this window is commensurate with other residential properties in the vicinity. Overall, the sunlight effect to this windows is considered negligible to minor.

6 Conclusions

6.1 This report has considered the potential daylight and sunlight effects to the surrounding residential properties as a result of the implementation of the proposed Farshid Moussavi Architecture scheme for 176 Prince of Wales Road.

6.2 The results demonstrate that the daylight and sunlight effects to the vast majority of neighbouring properties meet the levels recommended in the BRE guidelines. Where greater daylight and sunlight effects exist, these are deemed to be negligible to minor by virtue of the high levels of retained daylight and sunlight amenity to the effected windows and rooms.

6.3 Overall, the development retains excellent levels of daylight and sunlight amenity to all neighbouring residential receptors and the results are deemed to fall within the practical application of the BRE guidelines.

Appendix A – Drawings

Appendix B – Results