



Daylight & Sunlight Report

**36-52 & 20 Fortess Grove
London**

30th June 2015

Prepared for:

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Appendix A – 3D Drawings and Context

Appendix B – Detailed Daylight Results

1. Introduction

EB7 have been instructed to assess the daylight and sunlight implications of the proposal at the rear of 36-52 & 20 Fortess Grove. This report will discuss the daylight and sunlight within the proposed residential accommodation.

The methodology and criteria used for these assessments is provided by the Building Research Establishments guidance 'Site layout planning for daylight and sunlight: a guide to good practice' (BRE, 2011) and the British Standard document BS8206 pt2.

2. Policy and Guidance

2.1 Site layout planning for daylight and sunlight: a guide to good practice, BRE 2011

This document is based on guidance produced by Her Majesty's Stationary Office (HMSO) on daylight and sunlight in the built environment and is now the accepted methodology used by local authorities for assessing daylight and sunlight in relation to new developments. It provides methods for the calculation of daylight and sunlight to existing surrounding properties.

There are three methods for calculating daylight, the Vertical Sky Component (VSC), the No-Sky Line Contour (NSC) and the Average Daylight Factor (ADF). The BRE guidance states that for internal analysis of daylight it is appropriate to assess ADF. For sunlight, the Annual Probable Sunlight Hours (APSH) method is used, although specific calculations are not always required.

The ADF method calculates the average illuminance within a room as a proportion of the illuminance available to an unobstructed point outdoors under a sky of known luminance and luminance distribution. This is the most detailed of the daylight calculations and considers the physical nature of the room behind the window, including; window transmittance, and surface reflectivity.

For sunlight the APSH test calculates the percentage of statistically probable hours of sunlight received by each window in both the summer and winter months. March 21st through to September 21st is considered to be the summer period while September 21st to March 21st is considered the winter period. For properties surrounding a new development only those windows orientated within 90° of due south and which overlook the site of the proposal are relevant for assessment.

The opening paragraphs of the BRE guidelines state: -

"The guide is intended for building designers and their clients, consultants and planning officials. The advice given here is not mandatory and the document should not be seen as an instrument of planning policy. Its aim is to help rather than constrain the designer. Although it gives numerical guidelines, these should be interpreted flexibly because 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".

It is considered important to note that in high density areas, achieving good levels of daylight and sunlight in accordance with the BRE guidelines, can conflict with other beneficial design factors.

2.2 Lighting for buildings - Part 2: Code of Practice for daylighting (BS 8206-2:2008)

This document deals with the assessment methodology for internal daylight and sunlight. It suggests that ADF be used to assess internal daylight and APSH to assess internal sunlight. The methodologies for these assessments are the same as those discussed in the BRE guidance.

3. Assumptions

The 3D model of this building has been built using the, architects proposal drawings and site images of the existing building and its immediate neighbours to allow for a detailed internal daylight and sunlight assessment.

4. Sources of Information

4.1 Cooley Architects

- Drawing Package 687 – LY – Plans and elevations
- 687 - Sketch up model
- 687 – Revit based Planning Model

5. The Site, the Proposal and Surrounding Buildings

The project at Fortess Grove involves the part demolition and part retention of an existing warehouse structures to create 1,138 sq m of commercial floorspace over 3 levels, 8 x no. 3 bedroom and 1 x no. 2 bedroom dwellings, together with associated landscaping. Overall, the project is to provide 9 x new build dwellings.

8 of the proposed new build 3 bedroom dwellings will be arranged with the envelope of the existing warehouse structure. There are 2 main types of dwellings – types A & B are 3 storey terraced units constructed within the existing envelope as noted above, with ground floor living spaces arranged around a central lightwell, and 3 bedrooms arranged over the 2 upper floors. The westerly wall of the existing commercial building has been retained and acts as a boundary wall to the development.

The final unit – type C, is a conversion of an existing industrial unit located to the rear of the main terrace, with 2 storey accommodation – open plan living area at ground floor and 2 bedrooms as first floor.

As the proposal sits fully within the envelope of the existing building the assessment of daylight and sunlight to the neighbours is not required.

Drawing of the proposal in context of the surrounding buildings is shown within **Appendix A**

6. Assessment Criteria

The guidance suggests that ADF should be used to assess daylight within the proposed development. For a predominantly daylight appearance the ADF should exceed 5% if there is no supplementary electric lighting, or 2% if there is supplementary electric lighting. Furthermore, the minimum values for residential accommodation should be 1% for bedrooms, 1.5% for living rooms and 2% for kitchens.

For sunlight the guidance suggests that living rooms or main habitable rooms have the main expectation for sunlight and that kitchens, bedrooms and ancillary rooms are deemed less important. To appear well sunlit at least one window within the main living room should receive 25% of total annual sunlight with 5% in the winter period (September to March).

As described in the policy and guidance section, the BRE guidelines state that they should be interpreted flexibly.

7. Results

7.1 Daylight and Sunlight (Internal)

Full results of the daylight and sunlight assessments within the proposed dwellings are attached within **Appendix B**. These can be cross referenced with the drawings in **Appendix A**.

Given that the general aspect in terms of orientation and surrounding context is consistent for the terrace of 8 units of types A & B, 2 sample units have been assessed, 1 x type A and 1 x type B. In addition, the 1 x type C unit has also been assessed.

Daylight

Significant daylight design work has gone into developing a scheme with good levels of natural light considering the constrained context. Where possible glazing has been maximised and light wells/roof lights included to bring as much daylight into the rooms as possible. The result is an excellent level of compliance for a scheme with such neighbouring constraints.

The results of the ADF assessment have shown that each of the bedrooms retain good levels of daylight well in excess of the 1% ADF criteria suggested within the British Standard and BRE documents.

The living room areas, with the large areas of glazing both to the light well and with patio glazing all enjoy good levels of daylight – achieving a minimum ADF at 2.8%, well in excess of the 1.5% target suggested by the BRE.

The identified kitchen/dining areas would for unit types A, B and C receive ADFs of 2.0, 1.8 & 2.8% respectively. Although unit type B falls marginally below the 2% target for a kitchen this would be considered acceptable as giving the constraints of the site location, the efforts that have gone into maximising daylight to this area and the compliant living room this kitchen leads off.

Overall the internal daylight is in line with the intentions of the BRE guidance in terms of internal daylight.

Sunlight

The guidance suggests that sunlight to the main living areas should be checked and that bedrooms and kitchens are less important.

In order to maximise daylight, the living rooms of the proposed development are orientated to the north-west where the surrounding context is less. As a result these north west facing rooms do not meet target criteria of 25% total and 5% winter under the BRE guidance in terms of sunlight.

This should be taken in context with the overall amenity of the proposed scheme – which offers good levels of daylight, and outdoor amenity space directly linked to the main living areas via large patio doors.

Clearly, the design principles behind the project layout mean that the aspect of the development is fixed in a northwest-southeast orientation, with only the upper floors able to have the benefit of the southerly aspect. 2nd floor living accommodation would not be ideal – remote from the kitchen/living area and no direct access to the external amenity space.

The BRE guidance States:

"Although it gives numerical guidelines, these should be interpreted flexibly since natural lighting is only one of many factors in site layout design"

Accordingly, the design team have ensured good levels of daylight, which combined with private external amenity space leading off well daylight living areas. Applying the flexibility described above, this should be seen as an acceptable compromise.

8. Conclusions

The quality of daylight and sunlight have been assessed using the ADF and APSH methodologies as recommended within the BRE document 'Site layout planning' and the British Standard document BS8206 pt2. With large glazed areas and significant light wells, all units achieve good daylight levels, in line with the intentions of the BRE guidance.

The north-western orientation of the main façade and the availability of external amenity space has enabled the design team to take maximum advantage of the amount of daylight available; although it has not been possible to achieve full sunlight compliance with the BRE and BS criteria for all of the living rooms. In this case the trade off of good daylight levels and private external amenity space leading off living rooms for direct sunlight is seen as acceptable considering the flexibility of the BRE guidance.

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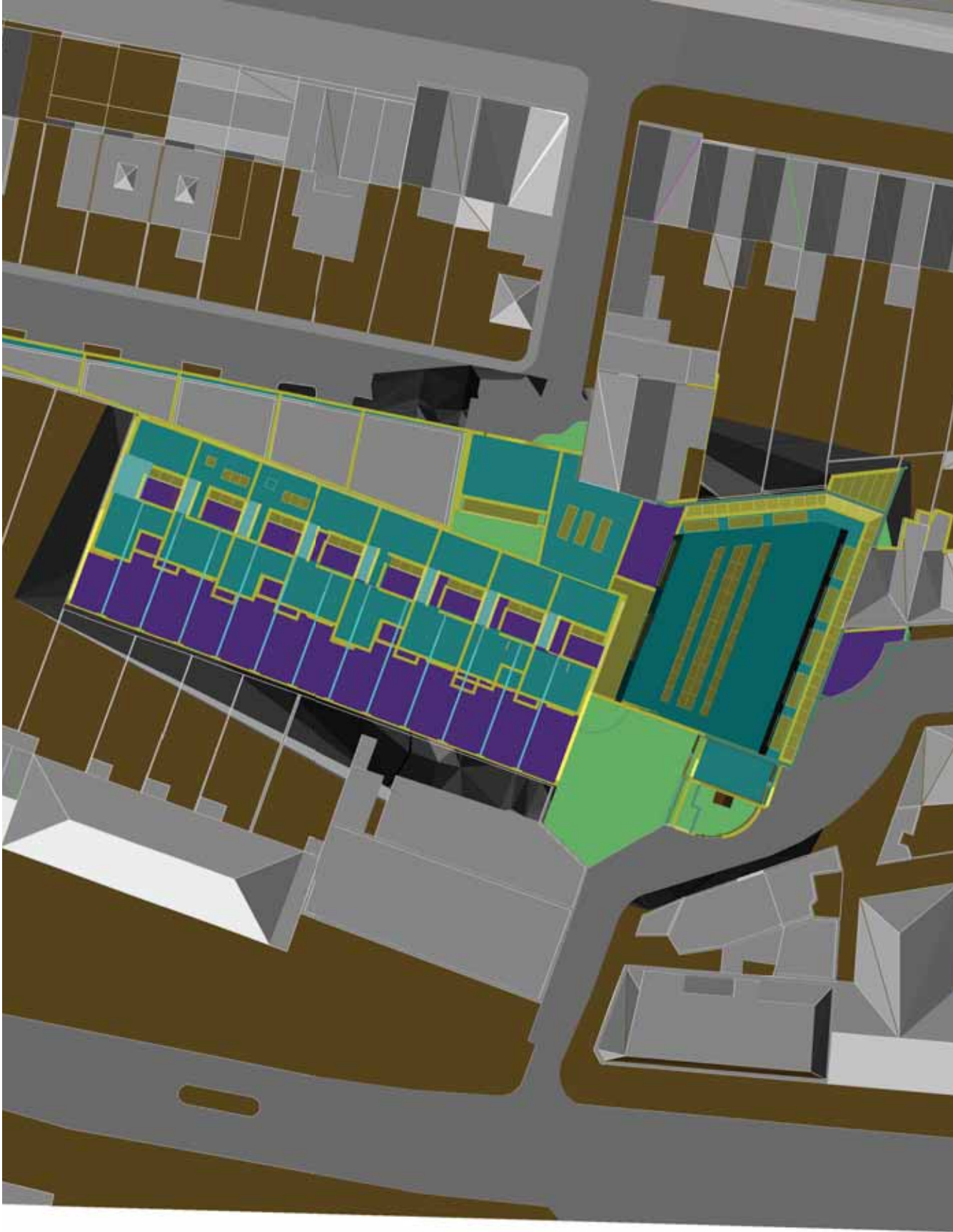
9. References

Site layout planning for daylight and sunlight, BRE, 2011

Lighting for buildings - Part 2: Code of Practice for daylighting (BS 8206-2:2008)

Appendix A – 3D Drawings and context

Sources of information



Project Fortress Grove

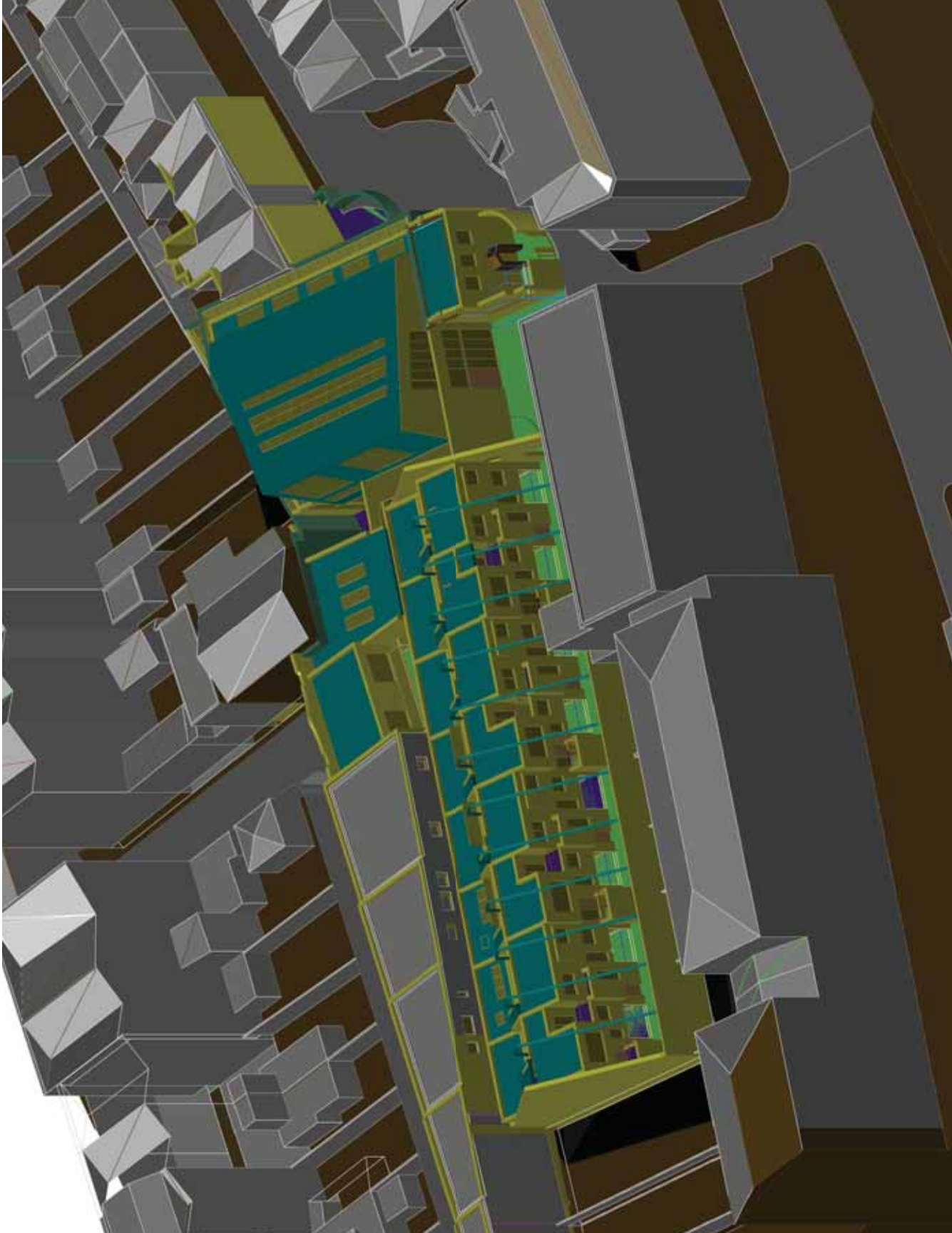
Title Proposed Development
Plan View

Drawn DS Checked DF

Date 30/06/2015 Rel no. 01

Drawing no. 1788-01

Sources of information



Project Fortress Grove

Title Proposed Development
3D View

Drawn	DS	Checked	DF
Date	30/06/2015	Rel no.	01

Drawing no. 1788-02

Appendix B – Detailed daylight and sunlight results

15319 - Fortess Grove				TOTAL	WINTER
ADF				APSH	APSH
Block	Zone	Floor Area (m2)	Average Daylight Factor (%)		
26 Kitchen diner	Type A	16.59	2.01	N/A	N/A
47 Living	Type A	15.55	3.84	10	2
50 Bedroom 1	Type A	15.89	4.23	N/A	N/A
49 Bedroom 2	Type A	12.42	1.74	N/A	N/A
90 Bedroom 3	Type A	12.57	3.81	N/A	N/A
27 Kitchen	Type B	16.59	1.76	N/A	N/A
48 Living	Type B	15.48	3.41	5	0
55 Bedroom 1	Type B	17.915	1.39	N/A	N/A
106 Bedroom 2	Type B	12.19	4.71	N/A	N/A
58 Bedroom 3	Type B	12.42	1.98	N/A	N/A
121 Living / Kitchen	Type C	29.9	2.81	10	0
87 Bedroom 1	Type C	11.39	1.59	N/A	N/A
126 Bedroom 2	Type C	15.72	3.59	N/A	N/A