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Internal Daylight Report
31 Daleham Gardens

11th july 2023

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Internal Daylight Report

Daylight Levels in Proposed Development

Client: Altair Ltd.

Project: 31 Daleham Gardens, London, NW3 5BU

Date: 11th July 2023

Authors: Chris Jones, BEng (Hons) MSc.

Andrew Pickersgill BSC (Hons), AssocRICS

About *MES Building Solutions*

***MES Building Solutions* is an established consultancy practice specialising in providing building solutions throughout the UK.**

We offer a full range of services for both residential and commercial buildings from small individual properties through to highly complex mixed use developments.

We are an industry leader in delivering a professional, accredited and certified service to a wide range of clients including architects, developers, builders, housing associations, the public sector and private householders.

Employing highly qualified staff, our team comes from a variety of backgrounds within the construction industry with combined knowledge of building design, engineering, assessment, construction, development, research and surveying.

MES Building Solutions maintains its position at the forefront of changes in building regulations as well as technological advances. Our clients, large or small are therefore assured of a cost effective, cohesive and fully integrated professional service.

About the Authors

Chris Jones is the Technical Director at *MES Building Solutions*. Chris has a Masters Degree in Energy Efficient & Sustainable Building, as well as an Honours degree in Mechanical Engineering. Chris has over 20 years' experience in providing sustainable building solutions and assists the Neighbourly Matters team at MES. He undertakes daylighting, sunlight and shadow cast analysis for planning applications. Chris is also a qualified BREEAM assessor and has worked with some of the UK's top developers, as well as housing associations and local authorities.

Andrew Pickersgill is an Associate member of the Royal Institution of Chartered Surveyors and leads our neighbourly matters team. He has a BSc (Hons) degree in Building Surveying. Andrew undertakes daylighting, sunlight and shadow analysis for planning applications. He is also involved in party wall issues and carries out other building surveying services for our clients.

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Section 1: Executive Summary

Following a request from the planning officer, we have assessed the expected amount of natural daylight and sunlight in two habitable, lower ground floor rooms in the proposed redevelopment of 31 Daleham Gardens, London, NW3 5BU and compared the results to the recognised BRE guidance figures.

Calculations were undertaken in accordance with the BRE planning guidance following the procedures detailed Site Layout Planning for Daylight & Sunlight (SLPDS), PJ Littlefair et al 2022 and BS EN 17037-2018 Daylight in Buildings.

The result of our analysis shows that both lower ground floor habitable rooms meet the BRE planning guidance for daylight and sunlight provision.

Therefore, in our opinion, the dwelling will achieve an effective and balanced level of daylight provision that is fully compliant with the BRE planning guidance for daylight and sunlight in new residential properties.

Section 2: Introduction

The purpose of this report is to assess the natural daylight and sunlight levels in two habitable, lower ground floor rooms in the proposed redevelopment of 31 Daleham Gardens, London, NW3 5BU.

This report considers the daylight issues against the criteria set out for national guidance in the following publications:

- Site Layout Planning for Daylight & Sunlight (SLPDS), PJ Littlefair et al 2022 published by the Building Research Establishment (BRE).

  The SLPDS is the culmination of research undertaken by the BRE to determine whether or not a new development will achieve acceptable levels of internal daylight and sunlight. The BRE tests and are widely used by local authorities when deciding on development applications.

- BS EN 17037-2018 Daylight in Buildings.

There are no minimum mandatory requirements for daylighting in Building Regulations for England & Wales, but the guidance set out in SLPDS is widely accepted as the approved methodology when calculating light levels in habitable rooms.

Section 3: Assessment Process

The guidance states that rooms to be assessed should be living rooms, kitchens and bedrooms in residential properties. In non-domestic buildings rooms where occupants 'have a reasonable expectation of daylight' should be assessed. Although these spaces are not defined, examples are given of the type of non-domestic buildings that would normally fall into this category. These include schools, hospitals, hotels and hostels, small workshops and some offices.

It is important to note that the numerical values in the guidance are purely advisory and different criteria may be used based on the requirements for daylighting in an area viewed against other site layout constraints.

The parameters we have assessed are:

- Spatial Daylight Autonomy (SDA)
- Sunlight Exposure (SE)

A room reference plan of the spaces we have assessed can be found in Appendix 1.

Section 4: Daylight Provision:

Daylight Factor

Illuminance (Spatial Daylight Autonomy)

This method involves using climatic data for the location of the site (via the use of an appropriate typical or average year, weather file within the software) to calculate the illuminance from daylight at each point on an assessment grid on the reference plane at an at least hourly interval for a typical year.

The UK National Annex gives illuminance recommendations of 100 lux in bedrooms, 150 lux in living rooms and 200 lux in kitchens. These are the median illuminances, to be exceeded over at least 50% of the assessment points in the room for at least half of the daylight hours.

Other non-habitable rooms need not be assessed.

The calculation of Daylight Provision takes into account the following variables:

- The diffuse visible transmittance of the glazing (we have assumed a figure of 0.68 for double glazing).
- Maintenance factor, allowing for the effects of dirt (we have assumed a figure of 0.76).
- Net glazed area of the window. (we have assumed a figure of 0.8).
- Total area of the room surfaces.
- Surface Reflectance should represent real conditions. Where reflectance values have not been measured or specified, default values to be used in the calculation are given in Table C4.

Table C4 – Recommended default surface reflectance	
Surface	**Default reflectance**
Interior walls	0.5
Ceilings	0.7
Floors	0.2
Exterior walls and obstructions	0.3
Exterior ground	0.2

- Assessment grid: The calculation of illuminance or daylight factor is carried out on a grid of points on a reference plane within each room assessed. The plane is normally 0.85m from the floor level (sometimes described as the working plane height). The standard states that the assessment grid should exclude a band of 0.5m from the walls, unless otherwise specified. In dwellings it is recommended that a band of 0.3m should be excluded, to avoid excluding parts of the room that are used by the occupants.

Results

Calculations were undertaken in accordance with the procedures shown in SLPDS. Our results show that both lower ground floor habitable rooms meet the BRE planning guidance for daylight in new residential buildings, with Spatial Daylight Autonomy results in compliance with the guidelines contained in BS EN 17037-2018 Daylight in Buildings.

Please see Appendix 2 for the detailed results.

Section 5: Sulight Exposure:

The BRE guidance states that access to sunlight can be quantified. BS EN 17037[1] recommends that a space should receive a minimum of 1.5 hours of direct sunlight on a selected date between 1st February and 21st March with cloudless conditions. It is suggested that 21st March (equinox) be used.

The medium level of recommendation is three hours and the high level of recommendation four hours.

For dwellings, at least one habitable room, preferably a main living room, should meet at least the minimum criterion.

Results

Calculations were undertaken in accordance with the procedures detailed in SLPDS. Our results show that both lower ground floor habitable rooms meet the BRE planning guidance for sunlight in new residential buildings achieving Sunlight Exposure levels of at least the minimum standard recommended.

Please see Appendix 2 for the detailed results.

Section 6: Notes

This report has been prepared for the sole use of the Client. No representation or warranty (expressed or implied) is given to any other parties. Therefore this report should not be relied upon by any third party and we accept no liability from the use of this report by any other party.

Our calculations have been undertaken by using date obtained from a site visit, 3D laser scan survey, photographic evidence & OS data along with the drawing numbers below, supplied by Mole Architects Ltd:

2102-PL-E-010-PP1 Existing Site Plan
2102-PL-L-100-PP1 Proposed Site Plan
2102-PL-A-999-PP1 Proposed Lower Ground Floor
2102-PL-A-2000-PP1 Section A
2102-PL-A-2001-PP1 Section 1 Long Section
2102-PL-A-3000-PP1 Proposed South Elevation
2102-PL-A-3001-PP1 Proposed East Elevation
2102-PL-A-3002-PP1 Proposed North Elevation
2102-PL-A-3003-PP1 Proposed West Elevation

We are not aware of any conflicts of interest between ourselves and any other party concerning this project.

Appendix 1: Room Layouts

NOTES

NO.	REVISON	DATE
A	-	-
B	-	-
C	-	-
D	-	-

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CLIENT
Altair LTD

PROJECT
31 Daleham Gardens
Camden
London
NW3 5BU

DRAWING TITLE
Lower Ground Floor Plan
Option 3

DRAWN BY	CHECKED BY
NJW	CJ

DATE	DRAWING NO.
09/02/2023	-

SCALE
NTS

Appendix 2: Full Results Spreadsheets

MES Building Solutions Spatial Daylight Autonomy
Project: 31 Daleham Gardens
Date of Analysis: 21/02/2023

								Criteria				
Floor Ref	Room Ref	Room Use	Room Area m2	Effective Area	Median Lux	Area Meeting Target Lux	% of Area Meeting Target Lux	Target Lux	Req % of Effective Area	Req % of Daylight Hours	Daylight Hours	Meets BRE Guidance
31 Daleham Gardens												
ower Groun	R1	Bedroom	12.75	8.75	129	5.44	62%	100	50%	50%	4380	YES
	R2	LKD	23.68	17.82	274	10.60	59%	200	50%	50%	4380	YES

MES Building Solutions Sunlight Exposure
Project: 31 Daleham Gardens
Date: 09/02/2023

Floor Ref	Room Ref	Room Use	Window Ref	Window Orientation	Proposed Sunlight Exposure (Hours)	Rating
31 Daleham Gardens						
Lower Ground	R1	Bedroom	W1	189°	2.8	
					2.8	Minimum
Lower Ground	R2	LKD	W2	189°	4.6	
			W3	263°	2.1	
			W4	263°	2	
					5	High