
Daylight & Sunlight Report

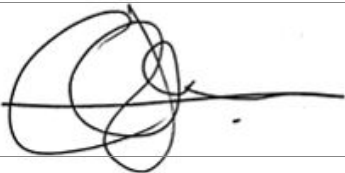
Assessment of Proposed Development

Client Name

73, 74 & 74A Broad Street

24th January 2025



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About MES Building Solutions

MES Building Solutions (MES) 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 and Code for Sustainable Homes 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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1.0 Executive Summary

We have carried out calculations following guidance in Site Layout Planning for Daylight & Sunlight (SLPDS), PJ Littlefair et al 2022 to assess the expected amount of natural daylight and sunlight in eight habitable rooms in two new three bed flats within the proposed second floor residential conversion of 73, 74, & 74A Broad Stret, Reading, RG1 2AP and compared the results to the recognised BRE guidance figures.



In dense town centre locations such as this, site constraints, including the number, height and proximity of other neighbouring buildings, means that rooms will often fall short of the guidance figures. This is compounded further when the proposal is for conversion of an existing building.

We have assessed the main open plan living space and three bedrooms in each of the two proposed new flats. All four rooms within Flat 1 comfortably meet the BRE guidance for sunlight provision. The Open plan living space in Flat 2 would be considered marginal, as it is 5% short of the target Lux for kitchens while it comfortably meets the BRE guidance for bedrooms. The third bedroom in this flat falls short of the guidance, however it should be borne in mind that the two other bedrooms, including the master bedroom, comfortably meet the guidance. Given that this is a converted building with fixed window positions we consider that the proposed design makes excellent use of the available floor area and provided excellent daylight provision when the nature of the building and its town centre location is taken into account.

Our results show that both of the proposed new flats will receive excellent sunlight provision to the main open plan living spaces and comfortably meet the BRE planning guidance.

Therefore, in our opinion, the development achieves an effective and balanced level of daylight provision which should be regarded as acceptable in this case.

2.0 Introduction

The purpose of this report is to assess the natural daylight and sunlight levels in eight habitable rooms in two new three bed flats within the proposed second floor residential conversion of 73, 74, & 74A Broad Stret, Reading, RG1 2AP.



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.

3.0 Planning Policy

3.1 National Planning Policy

The national Planning Policy Framework (Department for Levelling Up, Housing & Communities December 2024) makes little direct reference to Daylight & Sunlight However, in Section 11 (Making effective use of land), paragraph 124 states:

“Planning policies and decisions should promote an effective use of land in meeting the need for homes and other uses, while safeguarding and improving the environment and ensuring safe and healthy living conditions.”

Section 11 continues in paragraph 130c:

“local planning authorities should refuse applications which they consider fail to make efficient use of land, taking into account the policies in this Framework. In this context, when considering applications for housing, 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).”

3.2 London Plan 2021

Policy D6 Housing quality and standards

- a) Housing development should maximise the provision of dual aspect dwellings and normally avoid the provision of single aspect dwellings. A single aspect dwelling should only be provided where it is considered a more appropriate design solution to meet the requirements of Part B in Policy D3 Optimising site capacity through the design-led approach than a dual aspect dwelling, and it can be demonstrated that it will have adequate passive ventilation, daylight and privacy, and avoid overheating.
- b) The design of development should provide sufficient daylight and sunlight to new and surrounding housing that is appropriate for its context, whilst avoiding overheating, minimising overshadowing and maximising the usability of outside amenity space.

3.3 London Plan 2016 Housing SPG

Section 1.3 Optimising housing potential

Standards for privacy, daylight and sunlight

- 1.3.45 Policy 7.6Bd requires new development to avoid causing 'unacceptable harm' to the amenity of surrounding land and buildings, particularly in relation to privacy and overshadowing and where tall buildings are proposed. An appropriate degree of flexibility needs to be applied when using BRE guidelines¹⁰⁰ to assess the daylight and sunlight impacts of new development on surrounding properties, as well as within new developments themselves. Guidelines should be applied sensitively to higher density development, especially in opportunity areas, town centres, large sites and accessible locations, where BRE advice suggests considering the use of alternative targets. This should take into account local circumstances; the need to optimise housing capacity; and scope for the character and form of an area to change over time.
- 1.3.46 The degree of harm on adjacent properties and the daylight targets within a proposed scheme should be assessed drawing on broadly comparable residential typologies within the area and of a similar nature across London. Decision makers should recognise that fully optimising housing potential on large sites may necessitate standards which depart from those presently experienced but which still achieve satisfactory levels of residential amenity and avoid unacceptable harm.

Section 2.3 Dwellings (Policy 3.5, part C)

Daylight and Sunlight

Standard 32- All homes should provide for direct sunlight to enter at least one habitable room for part of the day. Living areas and kitchen dining spaces should preferably receive direct sunlight.

- 2.3.45 Daylight enhances residents' enjoyment of an interior and reduces the energy needed to provide light for everyday activities, while controlled sunlight can help to meet part of the winter heating requirement. Sunlight is particularly desirable in living areas and kitchen dining spaces. The risk of overheating should be taken into account when designing for sunlight alongside the need to ensure appropriate levels of privacy. In addition to the above standards, BRE good practice guidelines and methodology¹⁴⁶ can be used to assess the levels of daylight and sunlight achieved within new developments, taking into account guidance below and in Section 1.3.
- 2.3.46 Where direct sunlight cannot be achieved in line with Standard 32, developers should demonstrate how the daylight standards proposed within a scheme and individual units will achieve good amenity for residents. They should also demonstrate how the design has sought to optimise the amount of daylight and amenity available to residents, for example, through the design, colour and landscaping of surrounding buildings and spaces within a development
- 2.3.47 BRE guidelines¹⁴⁷ on assessing daylight and sunlight should be applied sensitively to higher density development in London, particularly in central and urban settings, recognising the London Plan's strategic approach to optimise housing output (Policy 3.4) and the need to accommodate additional housing supply in locations with good accessibility suitable for higher density development (Policy 3.3). Quantitative standards on daylight and sunlight should not be applied rigidly, without carefully considering the location and context and standards experienced in broadly comparable housing typologies in London.

4.0 Description of Development

The scheme comprises of the residential conversion of the second floor of 73, 74, & 74A Broad Stret, Reading, RG1 2AP to form two new three bed apartments.



The property is located on the north east corner of Broad Street and West Street. Central Reading. The three storey building is within the main shopping area and is currently in commercial use over three storeys with a number of smaller retail units at ground floor level. The property is neighboured by buildings of a similar size and usage mix.



Site Location Plan

5.0 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)

Room reference plans of the spaces we have assessed can be found in Appendix 1.

The assessment is based on a 3D Zmapping CAD model and OS data, along with the following drawings, provided by APR Architecture Ltd:

- 24.37 01 Site Plans
- 24.37 04 Existing Elevations
- 24.37 05 Existing Section
- 24.37 07 Proposed Second Floor Plans

6.0 Daylight Provision

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. Assumed reflectance for individual elements are:

Assumed Surface Reflectance	
Surface	Assumed Reflectance
Interior Walls	0.8 (White Painted Finish)
Ceilings	0.8 (White Painted Finish)
Floors	0.2 (Default)
Exterior Walls & Obstructions	0.3 (Default)
Exterior Ground	0.2 (Default)

- 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.

Daylight Provision Results

Calculations were undertaken in accordance with the procedures shown in SLPDS. Of the eight habitable rooms assessed, six comfortably et the BRE guidance for daylight provision, while one of the remaining two rooms would be considered marginal.

We have assessed the main open plan living space and three bedrooms in each of the two proposed new flats. All four rooms within Flat 1 comfortably meet the BRE guidance for sunlight provision. The Open plan living space in Flat 2 would be considered marginal, as it is 5% short of the target Lux for kitchens while it comfortably meets the BRE guidance for bedrooms. The third bedroom in this flat falls short of the guidance, however it should be borne in mind that the two other bedrooms, including the master bedroom, comfortably meet the guidance. Given that this is a converted building with fixed window positions we consider that the proposed design makes excellent use of the available floor area and provided excellent daylight provision when the nature of the building and its town centre location is taken into account.

Please see Appendix 2 for the detailed results.

7.0 Sunlight Exposure

The BRE guidance states that access to sunlight can be quantified. BS EN 17037 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.

Sunlight Exposure Results

Calculations were undertaken in accordance with the procedures detailed in SLPDS. Our results show that both of the proposed new flats will receive excellent sunlight provision to the main open plan living spaces and comfortably meet the BRE planning guidance.

Please see Appendix 2 for the detailed results.

8.0 Notes

This report has been prepared for the use of the Client in support of a planning application. No representation or warranty (expressed or implied) is given to any other parties for any other purpose. Therefore, this report should not be relied upon by any third party for any other use and we accept no liability from the use of this report in any way other than originally intended.

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



Appendix 1

Room Layouts



Newark Beacon
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Newark NG24 2TN
01636 653 055

www.mesbuildingsolutions.co.uk

CLIENT:
PR Architecture

PROJECT :
73, 74 & 74A Broad
Street, Reading

DRAWING TITLE:
Second Floor Layout

DRAWN BY:
NJW

DATE:
20/1/2025

CHECKED BY:
CJ

SCALE:
NTS



Appendix 2

Daylight Test Results

Spatial Daylight Autonomy



BRE New Building Daylight Assessment (Spatial Daylight Autonomy)
Project: 73, 74 & 74A Broad Street
Date of Analysis: 24/01/2025

								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
Apartment 1												
Second	R1	Bedroom	12.86	8.77	1193	8.77	100%	100	50%	50%	4380	YES
	R2	LKD	51.84	42.54	754	42.54	100%	200	50%	50%	4380	YES
	R3	Bedroom	12.91	8.94	544	8.94	100%	100	50%	50%	4380	YES
	R4	Bedroom	13.86	9.63	255	9.63	100%	100	50%	50%	4380	YES
Apartment 2												
Second	R1	Bedroom	16.83	12.18	156	10.20	84%	100	50%	50%	4380	YES
	R2	Bedroom	16.00	11.19	62	3.36	30%	100	50%	50%	4380	NO
	R3	Bedroom	15.98	11.21	1044	11.21	100%	100	50%	50%	4380	YES
	R4	LKD	59.96	49.32	182	22.58	46%	200	50%	50%	4380	Marginal



Appendix 3

Sunlight Exposure Results



BRE New Building Sunlight Analysis (Sunlight Exposure)
Project: 73, 74, 74A Broad Street
Date: 24/01/2025

Floor Ref	Room Ref	Room Use	Window Ref	Window Orientation	Existing Sunlight Exposure (Hours)	Proposed Sunlight Exposure (Hours)	Rating
Apartment 1							
Second	R1	Bedroom	W1	219°	-1	5.8	
			W2	219°	-1	5.8	
					-1	5.8	High
Second	R2	LKD	W3	199°	-1	7.5	
			W4	199°	-1	5.7	
			W5	169°	-1	7.7	
			W6	169°	-1	7.7	
			W7	169°	-1	7.7	
					-1	9.5	High
Second	R3	Bedroom	W8	169°	-1	7.7	
					-1	7.7	High
Second	R4	Bedroom	W9	92°	-1	0	
					-1	0	Falls Short
Apartment 2							
Second	R1	Bedroom	W1	168°	-1	4	
					-1	4	Medium
Second	R2	Bedroom	W2	251°	-1	1.4	
			W3	251°	-1	0.9	
					-1	1.6	Minimum
Second	R3	Bedroom	W4	341°N	-1	0	
			W5	341°N	-1	0	
			W6	247°	-1	4.5	
					-1	4.5	High
Second	R4	LKD	W7	247°	-1	3.2	
			W8	247°	-1	1.6	
					-1	4.4	High