



Internal Daylight Report 11-12 Market Place

5th November 2021

Newark (Head) Office:

Newark Beacon, Beacon Hill Office Park,
Cafferata Way, Newark, Notts, NG24 2TN.
Tel: 01636 653 055

London Office:

344-354 Gray's Inn Road, King's Cross,
London WC1X 8BP.
Tel: 0207 033 3757

Birmingham Office:

2nd Floor Quayside Tower, 252-260 Broad St,
Birmingham B1 2HF.
Tel: 0121 285 2785

info@mesbuildingsolutions.co.uk | www.mesbuildingsolutions.co.uk

Daylight Report

Daylight Levels in Proposed Development

Client: Danks Badnell Chartered Architects

Project: 11-12 Market Place, Reading, RG1 2DQ

Date: 5th November 2021

Authors: Chris Jones, BEng (Hons)

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 15 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 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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List of contents

Section 1	Executive Summary
Section 2	Introduction
Section 3	Assessment Process
Section 4	Daylight in the Proposed Development
Section 5	Notes
<i>Appendix 1</i>	<i>Room Layouts</i>
<i>Appendix 2</i>	<i>Full Results Spreadsheets</i>



Section 1: Executive Summary

We have assessed the expected amount of natural daylight in twenty habitable rooms within seventeen new flats that will be created following the residential conversion of 11-12 Market Place, Reading, RG1 2DQ and compared the results to the recognised BRE guidance figures.

All twenty of the habitable rooms assessed meet the BRE guidance for average daylight factor.

Therefore, in our opinion, the development achieves an effective and balanced level of daylight provision in full accordance with the intent and context of the planning guidance in this case.



Section 2: Introduction

The purpose of this report is to assess the natural daylight levels in twenty habitable rooms within thirteen new flats that will be created following the residential conversion of 11-12 Market Place, Reading, RG1 2DQ.

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 2011 published by the BRE (Building Research Establishment).

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. The BRE tests are approved by the Department of the Environment and are widely used by local authorities when deciding on development applications.

- BS 8206-2- Code of practice for skylighting.

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.

It is worthy of note that SLPDS was first published in 1991 and BS 8206-2 in 1992. However SLPDS was updated in Oct 2011. We have undertaken this study on the basis of this guidance document.



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 parameter we have used to assess the level of daylight provision within the newly formed habitable spaces is Average Daylight Factor (ADF)

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

Section 4: The amount of daylight in the proposed development:

Average Daylight Factors

The BRE guidance states daylight provision may be checked by using the Average Daylight Factor (ADF). The ADF is a measure of the overall amount of daylight in a space.

BS 8206-2 Code of Practice for Daylighting recommends the following values for residential buildings:

Kitchens	2%
Living Rooms	1.5%
Bedrooms	1%

Other non-habitable rooms need not be assessed.

The calculation of the Average Daylight Factor takes into account the following variables:

- The diffuse visible transmittance of the glazing (we have assumed a figure of 0.68 for double glazing).
- A maintenance factor, allowing for the effects of dirt.
- The net glazed area of the window.
- The total area of the room surfaces.
- The average reflectance of the rooms (we have assumed a light coloured room with a value of 0.6).
- The angle of the visible sky (taking into account external obstructions).

Results

Calculations were undertaken in accordance with the procedures shown in SLPDS. Our results show that all twenty of the habitable rooms assessed achieve ADF values in line with the BRE planning guidelines. Indeed; a number of the rooms would be regarded as being extremely well lit.

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 drawing numbers below, supplied by Danks Badnell Chartered Architects:

21 – 16 PROPOSED TO MES 04 – 11 – 21.dwg

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



Appendix 1: Room Layouts



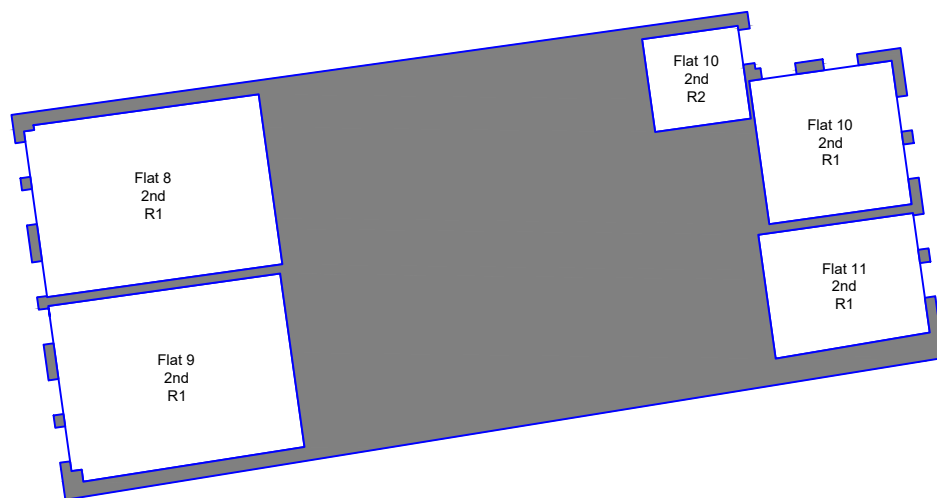
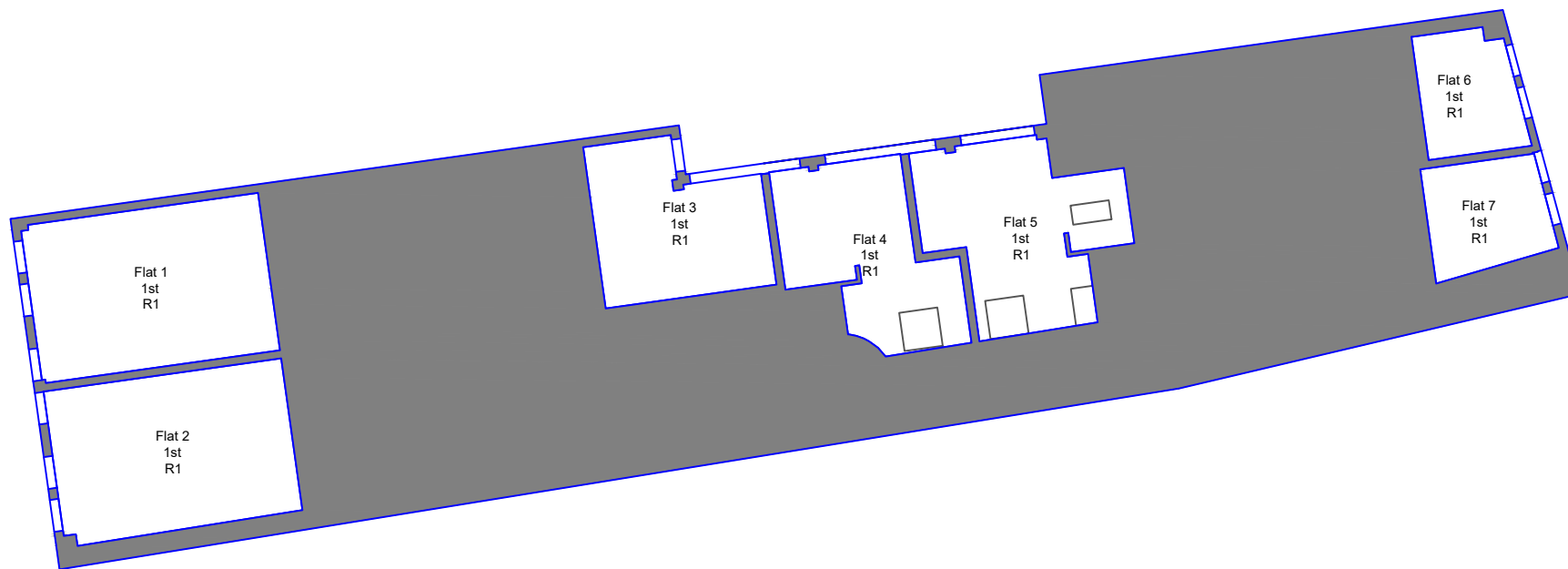
MES Building Solutions Average Daylight Factor Calculations
Project Name: 11 - 12 Market Place
Date: 04/11/2021

Floor Ref.	Room Ref.	Room Use.	Window Ref.	Glass Transmittance	Maintenance Factor	Glazed Area	Clear Sky Angle Proposed	Room Surface Area	Average Surface Reflectance	Below Working Plane Factor	ADF Proposed	Target Value	Meets BRE Guidance
Flat 1													
1st	R1	Bedsit	W1	0.68	1.00	1.25	62.11	147.55	0.60	1.00	0.56	1.50	YES
			W2	0.68	1.00	1.25	62.01	147.55	0.60	1.00	0.56		
			W3	0.68	1.00	1.25	61.97	147.55	0.60	1.00	0.56		
										1.67			
Flat 2													
1st	R1	Bedsit	W1	0.68	1.00	1.23	61.90	145.07	0.60	1.00	0.56	1.50	YES
			W2	0.68	1.00	1.25	62.06	145.07	0.60	1.00	0.57		
			W3	0.68	1.00	1.25	61.10	145.07	0.60	1.00	0.56		
										1.68			
Flat 3													
1st	R1	Bedsit	W1-L	0.68	1.00	1.57	24.18	109.83	0.60	0.15	0.06	1.50	YES
			W1-U	0.68	1.00	2.93	35.55	109.83	0.60	1.00	1.01		
			W2-L	0.68	1.00	0.68	27.13	109.83	0.60	0.15	0.03		
			W2-U	0.68	1.00	1.28	32.71	109.83	0.60	1.00	0.40		
										1.50			
Flat 4													
1st	R1	Bedsit	W1-L	0.68	1.00	1.67	28.44	123.52	0.60	0.15	0.06	1.50	YES
			W1-U	0.68	1.00	3.12	40.95	123.52	0.60	1.00	1.10		
			W2	0.68	1.00	1.14	132.13	123.52	0.60	1.00	1.30		
			W3-L	0.68	1.00	0.78	26.39	123.52	0.60	0.15	0.03		
			W3-U	0.68	1.00	1.45	39.45	123.52	0.60	1.00	0.49		
										2.98			
Flat 5													
1st	R1	Bedsit	W1-L	0.68	1.00	1.56	25.69	141.78	0.60	0.15	0.05	1.50	YES
			W1-U	0.68	1.00	2.92	38.61	141.78	0.60	1.00	0.85		
			W2-L	0.68	1.00	0.67	27.96	141.78	0.60	0.15	0.02		
			W2-U	0.68	1.00	1.26	40.78	141.78	0.60	1.00	0.39		
			W3	0.68	1.00	0.58	167.01	141.78	0.60	1.00	0.72		
			W4	0.68	1.00	1.14	165.45	141.78	0.60	1.00	1.42		
			W5	0.68	1.00	1.14	155.66	141.78	0.60	1.00	1.33		
										4.77			
Flat 6													
1st	R1	Bedsit	W1	0.68	1.00	1.23	37.48	64.14	0.60	1.00	0.77	1.50	YES
			W2	0.68	1.00	1.23	36.23	64.14	0.60	1.00	0.74		
											1.51		
Flat 7													
1st	R1	Bedsit	W1	0.68	1.00	1.23	39.14	67.12	0.60	1.00	0.76	1.50	YES
			W2	0.68	1.00	1.23	38.62	67.12	0.60	1.00	0.75		
											1.52		
Flat 8													
2nd	R1	Bedsit	W1-L	0.68	1.00	0.08	66.70	129.74	0.60	0.15	0.01	1.50	YES
			W1-U	0.68	1.00	0.93	66.02	129.74	0.60	1.00	0.50		
			W2-L	0.68	1.00	0.08	66.63	129.74	0.60	0.15	0.01		
			W2-U	0.68	1.00	0.94	65.97	129.74	0.60	1.00	0.51		
			W3-L	0.68	1.00	0.08	66.63	129.74	0.60	0.15	0.01		
			W3-U	0.68	1.00	0.93	65.97	129.74	0.60	1.00	0.50		
											1.53		
Flat 9													
2nd	R1	Bedsit	W1-L	0.68	1.00	0.08	66.65	130.92	0.60	0.15	0.01	1.50	YES
			W1-U	0.68	1.00	0.93	66.00	130.92	0.60	1.00	0.50		
			W2-L	0.68	1.00	0.08	66.72	130.92	0.60	0.15	0.01		
			W2-U	0.68	1.00	0.93	66.08	130.92	0.60	1.00	0.50		
			W3-L	0.68	1.00	0.08	65.30	130.92	0.60	0.15	0.01		
			W3-U	0.68	1.00	0.93	64.86	130.92	0.60	1.00	0.49		
											1.51		

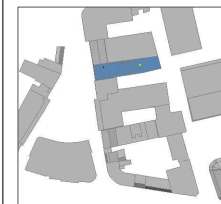
MES Building Solutions Average Daylight Factor Calculations Project Name: 11 - 12 Market Place Date: 04/11/2021													
Floor Ref.	Room Ref.	Room Use.	Window Ref.	Glass Transmittance	Maintenance Factor	Glazed Area	Clear Sky Angle Proposed	Room Surface Area	Average Surface Reflectance	Below Working Plane Factor	ADF Proposed	Target Value	Meets BRE Guidance
Flat 10													
2nd	R1	Living Room	W1-L	0.68	1.00	0.08	60.44	78.85	0.60	0.15	0.01		
			W1-U	0.68	1.00	0.92	59.83	78.85	0.60	1.00	0.74		
			W2-L	0.68	1.00	0.08	60.67	78.85	0.60	0.15	0.01		
			W2-U	0.68	1.00	0.92	60.05	78.85	0.60	1.00	0.75		
			W3-L	0.68	1.00	0.08	65.54	78.85	0.60	0.15	0.01		
			W3-U	0.68	1.00	0.92	65.32	78.85	0.60	1.00	0.81		
			W4-L	0.68	1.00	0.08	53.96	78.85	0.60	0.15	0.01		
			W4-U	0.68	1.00	0.92	53.69	78.85	0.60	1.00	0.67		
											3.00	1.50	YES
2nd	R2	Bedroom	W5-L	0.68	1.00	0.08	45.73	44.54	0.60	0.15	0.01		
			W5-U	0.68	1.00	0.92	45.34	44.54	0.60	1.00	1.00		
											1.01	1.00	YES
Flat 11													
2nd	R1	Bedsit	W1-L	0.68	1.00	0.08	59.19	74.71	0.60	0.15	0.01		
			W1-U	0.68	1.00	0.92	58.64	74.71	0.60	1.00	0.77		
			W2-L	0.68	1.00	0.08	59.75	74.71	0.60	0.15	0.01		
			W2-U	0.68	1.00	0.92	59.18	74.71	0.60	1.00	0.77		
Flat 12													
3rd	R1	Bedsit	W1	0.68	1.00	0.83	70.10	120.69	0.60	1.00	0.51		
			W2	0.68	1.00	0.83	70.08	120.69	0.60	1.00	0.51		
			W3	0.68	1.00	0.83	70.09	120.69	0.60	1.00	0.51		
											1.53	1.50	YES
Flat 13													
3rd	R1	Bedsit	W1	0.68	1.00	0.83	70.13	117.37	0.60	1.00	0.53		
			W2	0.68	1.00	0.83	70.19	117.37	0.60	1.00	0.53		
			W3	0.68	1.00	0.83	69.00	117.37	0.60	1.00	0.52		
											1.57	1.50	YES
Flat 14													
3rd	R1	Living Room	W1	0.68	1.00	0.81	63.86	81.79	0.60	1.00	0.67		
			W2	0.68	1.00	0.80	63.97	81.79	0.60	1.00	0.67		
			W3	0.68	1.00	0.81	70.64	81.79	0.60	1.00	0.75		
			W4	0.68	1.00	0.82	56.69	81.79	0.60	1.00	0.60		
											2.69	1.50	YES
3rd	R2	Bedroom	W5	0.68	1.00	0.81	49.08	41.29	0.60	1.00	1.02		
Flat 15													
3rd	R1	Bedsit	W1	0.68	1.00	0.81	63.13	71.90	0.60	1.00	0.75		
			W2	0.68	1.00	0.81	63.53	71.90	0.60	1.00	0.76		
											1.51	1.50	YES
Flat 16													
4th	R1	Living Room	W1	0.68	1.00	0.81	192.98	104.31	0.60	1.00	1.60		
											1.60	1.50	YES
4th	R2	Bedroom	W2	0.68	1.00	0.81	192.98	59.17	0.60	1.00	2.81		
											2.81	1.00	YES
Flat 17													
4th	R1	Bedsit	W1-L	0.68	1.00	0.23	73.21	148.74	0.60	0.15	0.02		
			W1-U	0.68	1.00	0.96	71.25	148.74	0.60	1.00	0.49		
			W2-L	0.68	1.00	1.09	73.85	148.74	0.60	0.15	0.09		
			W2-U	0.68	1.00	2.56	75.77	148.74	0.60	1.00	1.38		
			W3	0.68	1.00	0.55	69.10	148.74	0.60	1.00	0.27		
			W4	0.68	1.00	0.81	192.98	148.74	0.60	1.00	1.12		
											3.37	1.50	YES

Appendix 2: Full Results Spreadsheets





NOTES



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



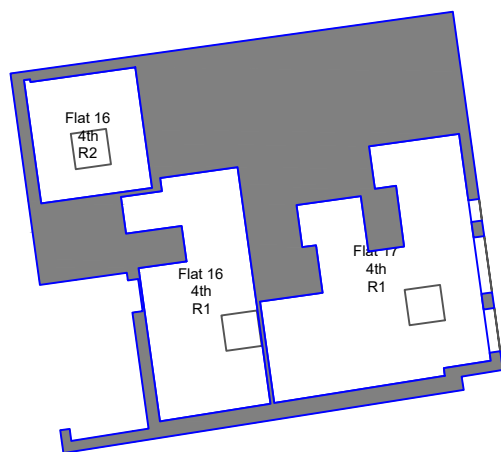
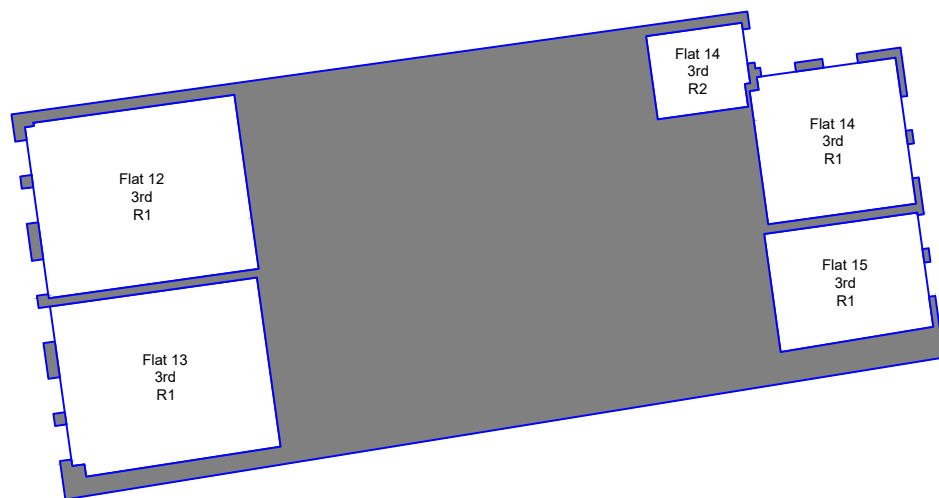
MES Building Solutions
Newark Beacon
Beacon Hill Office Park
Newark
Notts. NG24 2TN
01636 653 055
www.mesbuildingsolutions.co.uk

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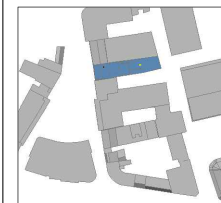
PROJECT
11-16 Market Place
Reading
Berkshire

DRAWING TITLE
ADF Plans
First & Second Floors

DRAWN BY WR/JB	CHECKED BY AP
DATE 04/11/2021	DRAWING NO. -
SCALE NTS	



NOTES



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



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Newark Beacon
Beacon Hill Office Park
Newark
Notts. NG24 2TN
01636 653 055
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PROJECT
11-16 Market Place
Reading
Berkshire

DRAWING TITLE
ADF Plans
Third & Fourth Floors

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DATE 04/11/2021	DRAWING NO. -
SCALE NTS	