Internal Daylight Assessment

The Old Dairy

For S333 Architecture

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About us:
XCO2 Energy are a low-carbon consultancy working in the built environment. We are a multi-disciplinary company consisting of both architects and engineers, with specialists including CIBSE low carbon consultants, Code for Sustainable Homes, EcoHomes and BREEAM assessors and LEED accredited professionals.

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Executive Summary

Internal daylight analysis was carried out for the minor amendment application of the approved scheme at The Old Dairy in Bloomsbury, within the London Borough of Camden. The proposal comprises the conversion of 3 nos. three storey houses within the approved scheme into 8 nos. flats.

This report outlines the results of the daylight analysis for the minor amendment application, assessing the internal daylight of the habitable spaces of the 8 nos. flats within the proposed development in line with BRE's "*Site Layout Planning for Daylight and Sunlight, A Guide to Good Practice*" by PJ Littlefair (2011), which is accepted as good practice by Planning Authorities.

The analysis results show that all habitable rooms in the 8 apartments at The Old Dairy, including the lower ground living areas, achieve Average Daylight Factor (ADF) levels above the targets set out in the BRE Guidance.

In summary, strategic positioning of sunken courtyards and large windows to all habitable spaces maximises the provision of daylight. All habitable rooms met the target ADFs, achieving satisfactory results for an urban location such as that in Central London. Therefore the development as a whole is deemed to be suitable for its intended proposal of 8 nos. flats.

Internal Daylight Assessment

An internal daylight assessment has been carried out for the habitable spaces of the 8 proposed flats to determine whether the habitable spaces located at this floor receive sufficient amount of daylight.

BRE Guidelines and Methodology

The following guidelines to analyse internal daylight and sunlight of a development are contained on the British Research Establishment's (BRE) publication Site Layout Planning for Daylight and Sunlight - A Guide to Good Practice, by PJ Littlefair (2011).

BRE Guidelines

The BRE publication Site Layout Planning for Daylight and Sunlight gives advice on site layout planning to achieve good daylighting in buildings. It is important to note that the advice given in the BRE guide is "not mandatory" and "its aim is to help rather than constrain the designer".

The guide also clearly states that "this document should not be seen as an instrument of planning policy" and that "in special circumstances the developer or planning authority may wish to use different target values".

The BRE sets the daylight assessment as the following recommended calculation:

Average Daylight Factor

The BRE states that daylighting in new habitable rooms can be determined using average daylight factor (ADF) calculations. BS8206-2 Code of Practice for Daylighting recommends different average daylight factors for different habitable spaces. These are as follows:

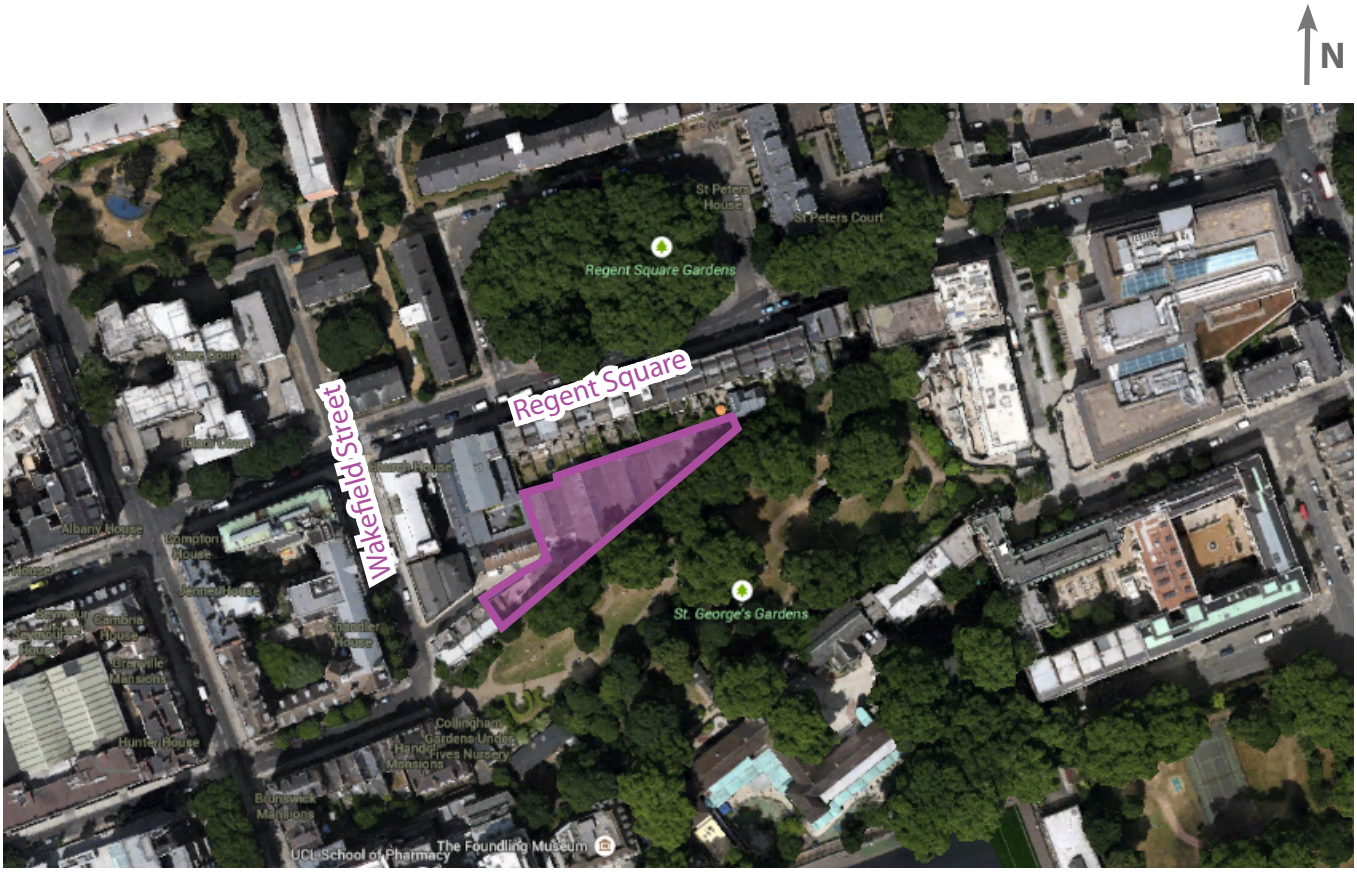
- 1% for bedrooms
- 1.5% for living rooms and
- 2% for kitchens

This report will demonstrate the calculations made in order to address the issues detailed by the BRE. Calculations were carried out using specialist computer software, based on the drawings provided by S333 Architecture.

Site

The proposed development of The Old Dairy is located to the east of Wakefield Street and south of Regent Square, in Bloomsbury within the London Borough of Camden. The minor amendment application is for the conversion of house units 4, 5 and 6 within the consented scheme into 7 nos. 2 bed flats and 1 nos. 3 bed flat. The proposed new flats will be distributed over the lower ground, ground and first floors of the scheme. The development is located to the south of a row of four storey terraced houses along Regents Square and north of St George's Gardens.

The approximate location of the site is shown in the figure below.

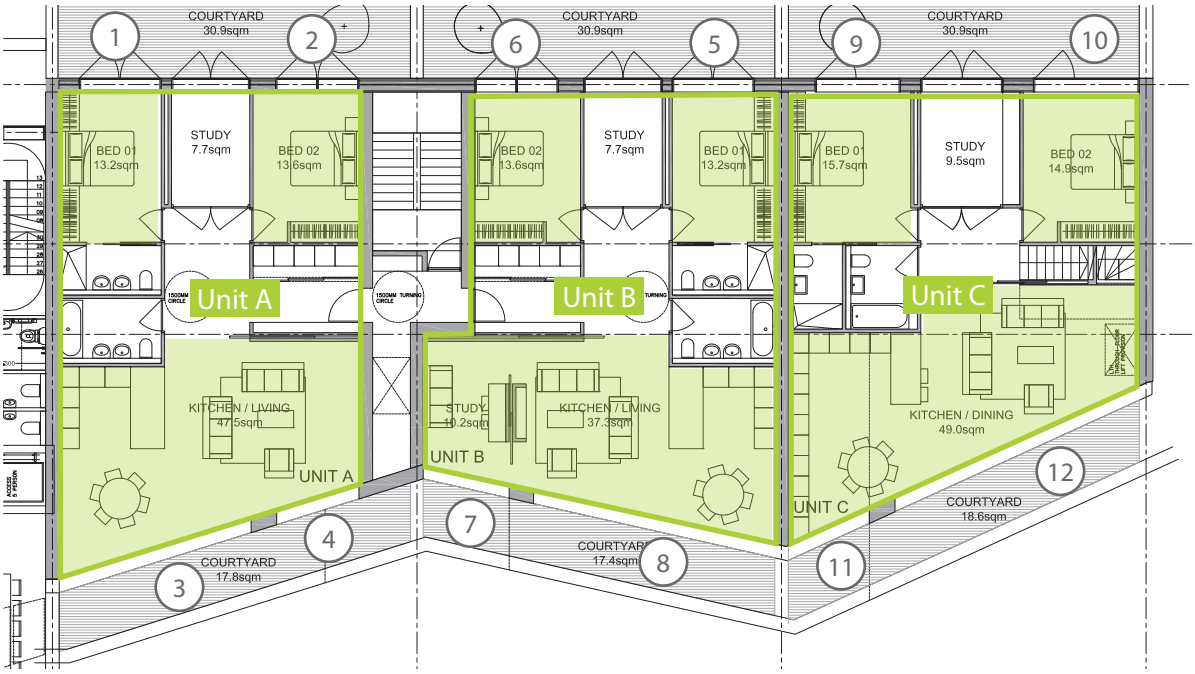


Plan of surrounding areas for proposed development at The Old Dairy. Site area highlighted in pink.

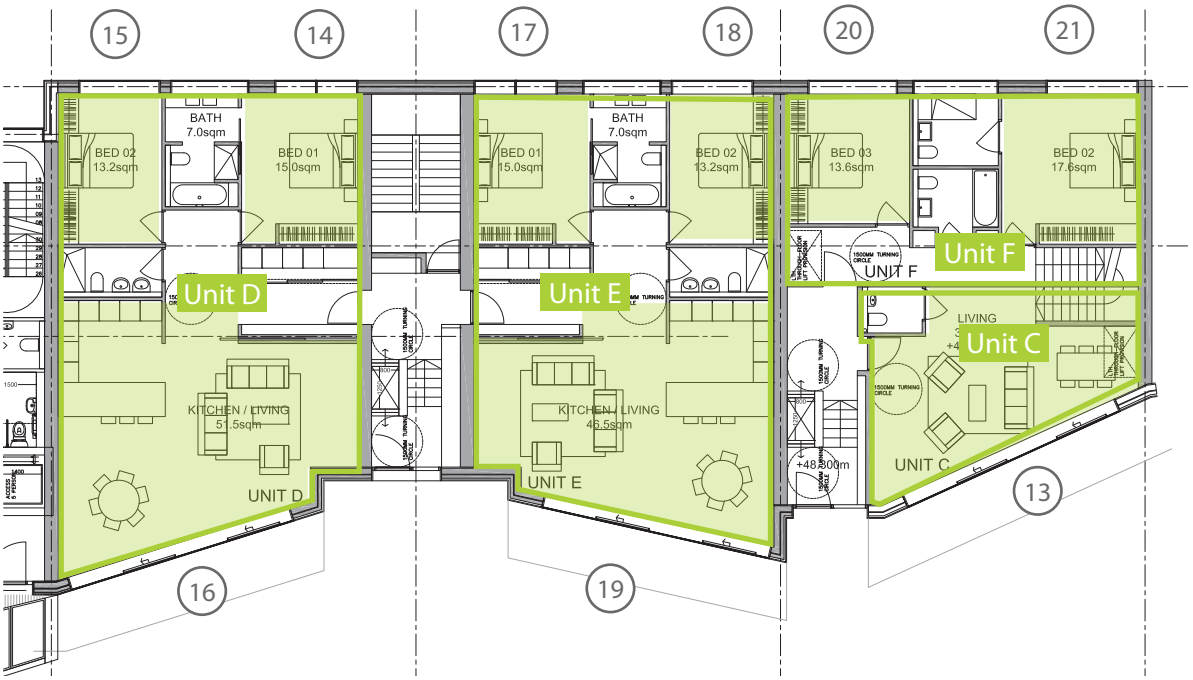
Internal Daylight Assessment Results

The following pages present the results for all habitable rooms within the 8 proposed flats.

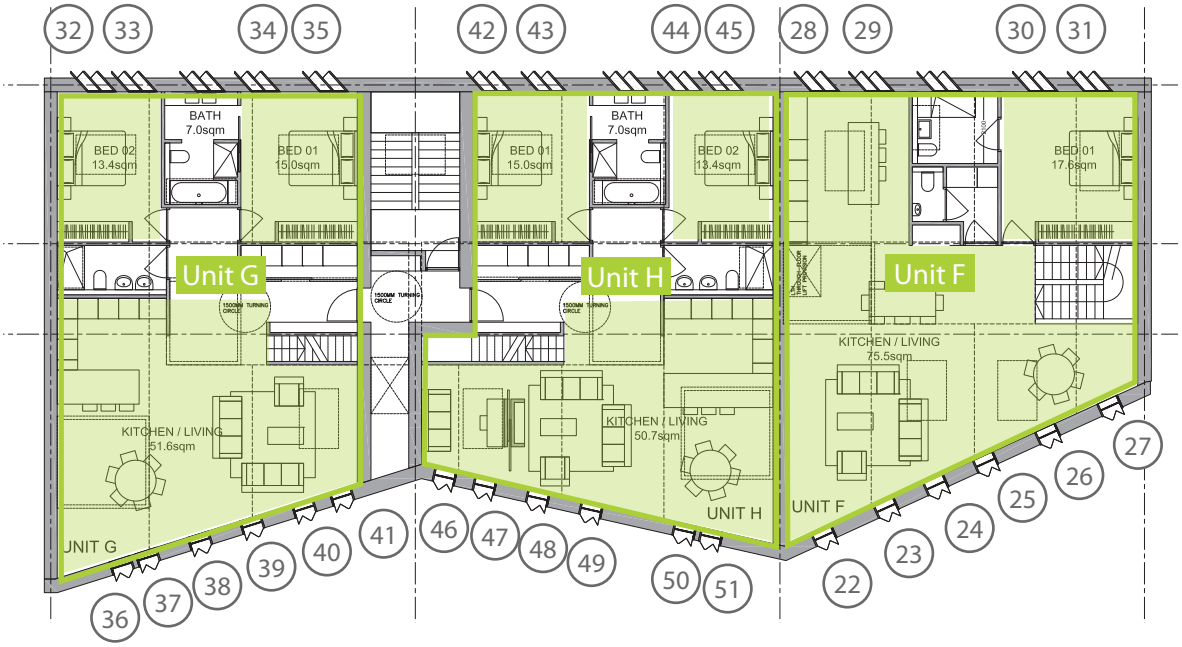
Analysis results show that all of the assessed habitable rooms achieve their corresponding ADF targets. The provision of sunken courtyards at the lower ground floor level, and good sized windows to all of the habitable rooms within the flat units enabled all habitable rooms within the flat units at The Old Dairy to meet BRE's ADF targets of 1% for bedrooms, 1.5% for living rooms and 2% for kitchens.



Lower ground floor plan of the proposed flats at The Old Dairy - Units A, B and C
(assessed rooms shaded in pale green)



Ground floor plan of the proposed flats at The Old Dairy - Units C, D, E and F
(assessed rooms shaded in pale green)



First floor plan of the proposed flats at The Old Dairy - Units F, G and H
(assessed rooms shaded in pale green)

Average Daylight Factor Results Summary - Units A to F

Unit	Window no.	Room Type	ADF(%)	Total ADF(%)	Target ADF (%)	Comments
A	1	Bedroom	1.83	1.83	1	Good daylight levels
	2	Bedroom	2.13	2.13	1	
	3	Kitchen/Living Dining	4.39	5.52	2	
	4		1.13			
B	5	Bedroom	2.09	2.09	1	Good daylight levels
	6	Bedroom	2.10	2.10	1	
	7	Kitchen/Living Dining	1.12	6.75	2	
	8		5.64			
C	9	Bedroom	1.84	1.84	1	Good daylight levels
	10	Bedroom	2.07	2.07	1	
	11	Kitchen/Dining	1.37	9.52	2	
	12		8.15			
	13	Living	6.41	6.41	1.5	
D	14	Bedroom	2.72	2.72	1	Good daylight levels
	15	Bedroom	3.16	3.16	1	
	16	Kitchen/Living Dining	4.47	4.47	2	
E	17	Bedroom	3.06	3.06	1	Good daylight levels
	18	Bedroom	3.17	3.17	1	
	19	Kitchen/Living Dining	4.85	4.85	2	
F	20	Bedroom	3.05	3.05	1	Good daylight levels
	21	Bedroom	2.61	2.61	1	
	22	Kitchen/Living Dining	0.37	2.88	2	
	23		0.37			
	24		0.37			
	25		0.37			
	26		0.37			
	27		0.37			
	28		0.34			
	29		0.34			
	30	Bedroom	1.15	2.30	1	
	31		1.15			

Average Daylight Factor Results Summary - Units G and H

Unit	Window no.	Room Type	ADF(%)	Total ADF(%)	Target ADF (%)	Comments
G	32	Bedroom	1.30	2.63	1	Good daylight levels
	33		1.33			
	34	Bedroom	1.24	2.48	1	
	35		1.24			
	36	Kitchen/Living/ Dining	0.52	3.11	2	
	37		0.52			
	38		0.52			
	39		0.52			
	40		0.52			
	41		0.52			
H	42	Bedroom	1.24	2.49	1	Good daylight levels
	43		1.24			
	44	Bedroom	1.32	2.65	1	
	45		1.32			
	46	Kitchen/Living/ Dining	0.51	3.08	2	
	47		0.51			
	48		0.51			
	49		0.51			
	50		0.51			
	51		0.51			

Conclusion

The analysis indicated that the internal daylight of all habitable spaces within the proposed flat units at The Old Dairy are well within acceptable limits set out in the BRE Guidance, with daylight calculation results for all assessed rooms, including the lower ground floor living areas, exceeding BRE's recommended ADF targets.

Therefore the development is deemed to be suitable for its intended proposal of 8 nos. flats with respect to daylight levels.