



Soane Point,

3-10 Market Place, Reading

Daylight and Sunlight Assessment

Job No: 4520

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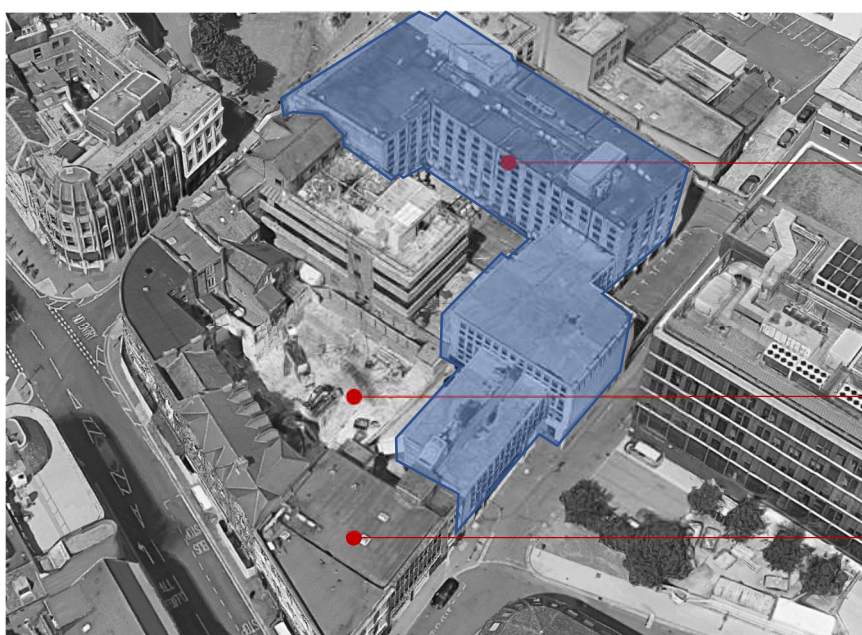
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1.0 Introduction

- 1.1 This daylight and sunlight assessment has been prepared to support a planning application for the proposed development of the site at 3-10 Market Place, Reading, known as the Soane Point building.
- 1.2 The report assesses the proposals in respect of daylight, sunlight and overshadowing matters, having regard to industry standard guidance. The report concludes that the proposal is acceptable and in accordance with planning policy requirements in relation to daylight and sunlight.
- 1.3 There is no existing specific National Planning Policy relating to the prospective impacts of developments on daylight and sunlight on their surrounding environment, although the NPPF, (paragraph 125), requires planning authorities to refuse applications that fail to make efficient use of land.
- 1.4 Reading Local Plan policy CC8 is the most relevant local policy which requires proposed developments to safeguard the amenity and access to daylight and sunlight for neighbouring properties.
- 1.5 The BRE Report 'Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice' (3rd Edition, 2022) is the established National guidance to aid the developer to prevent and/or minimise the impact of a new development on the availability of daylight and sunlight in the environs of the site.
- 1.6 This reference document is accepted as the authoritative work in the field on daylight, sunlight and overshadowing and is specifically referred to in many Local Authorities' planning policy guidance for daylighting. The methodology therein has been used in numerous lighting analyses and the standards of permissible reduction in light are accepted as the industry standards.

2.0 Project Summary

- 2.1 The proposal site is a former office building, rising to a maximum height of 6 storeys, sited on Market Place, Reading.
- 2.2 The proposal is for External works to existing building, including partial replacement of the existing façades fronting Market Place and Abbey Square alongside other external works to the building; set back single-storey extension above part of block fronting Market Place, part two, part three storey extensions above other blocks; and conversion and alterations to ground floor reception and car parking area.
- 2.3 Together the works will deliver 38 new homes and (internal and external) residential amenity areas with associated car parking"
- 2.4 The impacts of the scheme have been assessed, in line with BRE guidance. Generally, it is the impacts on residential neighbours which are of primary concern.
- 2.5 The main neighbours to the site are the rear facing windows of the buildings which front Kings Road to the south and Market Place to the west, along with the recently consented scheme to the south known as the Jacksons Corner development (most recent planning reference, 171238/VARIAT)
- 2.6 Where the usage of neighbouring windows is uncertain, they have been included for completeness.
- 2.7 In addition to assessing the impacts of the scheme on neighbours, daylight within the proposed new dwellings has also been assessed.



Site Location

Jacksons Corner Site

11-13 Kings Road

3.0 Methodology

- 3.1 For this analysis, we have undertaken the most common calculations for the change in daylight and sunlight to existing buildings, as recommended in BRE Digest 209. These are:
- Vertical Sky Component (VSC) and No Sky Line (NSL) for daylight impacts and Target Daylight Factor (DF_T) for daylight within the proposal.
 - Annual Probable Sunlight Hours and Winter Probable Sunlight Hours (A/WPSH) for sunlight impacts
- 3.2 The VSC method measures the general amount of light available on the outside plane of the window as a ratio (%) of the amount of total unobstructed sky viewable following introduction of visible barriers such as buildings. The maximum value is just under 40% for a completely unobstructed vertical wall.
- 3.3 The VSC is calculated using computer simulation under a CIE overcast sky. This works by simulating the amount of visible sky from the centre point of each window. It is not affected by orientation and so all potentially affected windows are assessed.
- 3.4 An additional test that can be undertaken is the No Sky Line (NSL) test, also referred to as Daylight Distribution.
- 3.5 The NSL test calculates the distribution of daylight within rooms by determining the area of the room at desk / work surface height (the 'working plane') which can and cannot receive a direct view of the sky and hence 'sky light'. The working plane height is set at 850mm above floor level within residential property.
- 3.6 The NSL test can be carried out where neighbouring room layouts are known.
- 3.7 Annual Probable Sunlight Hours (APSH) and Winter Probable Sun light Hours (WPSH) are a measure of the amount of potential direct sunlight that is available to a given surface.
- 3.8 APSH covers sunlight over the whole year and WPSH from September 21st to March 21st. The number of total available hours is calculated from a data file in the software, built up over a number of years of actual weather data records.
- 3.9 Only windows which face within 90° of due south need be assessed for sunlight. This is looked at in Section 9.
- 3.10 APSH can also be used to assess the impact on external spaces such as gardens. The proposed roof terrace of the property at 11-12 Market Place, which is under application for conversion for residential, has been assessed. This is looked at in Section 10.

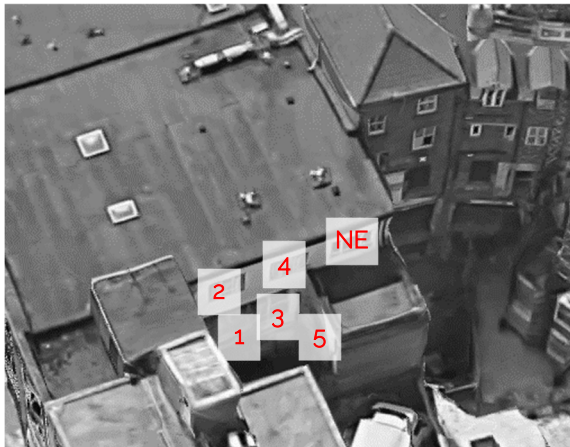
4.0 Modelling & Data Sources

- 4.1 The first stage of the analysis is to create the analysis model of the existing site condition and the proposal. This allows us to analyse the impact of the proposal when compared to the existing condition.
- 4.2 2D drawings have been provided by the design team. These drawings are used to construct a 3D analysis model which is exported into the specialist daylight software. Calculations are then run, for both existing and proposed scenarios.
- 4.3 Sufficient detail is added to the model for the analysis. In accordance with BRE recommendations, trees and foliage have been omitted from the calculations.
- 4.4 Information on the properties has been provided to us by the design team in the form of drawings for the site as existing and proposed and photographs of the site and surroundings.
- 4.5 Web-based mapping sources and planning records for neighbouring buildings have also been used.

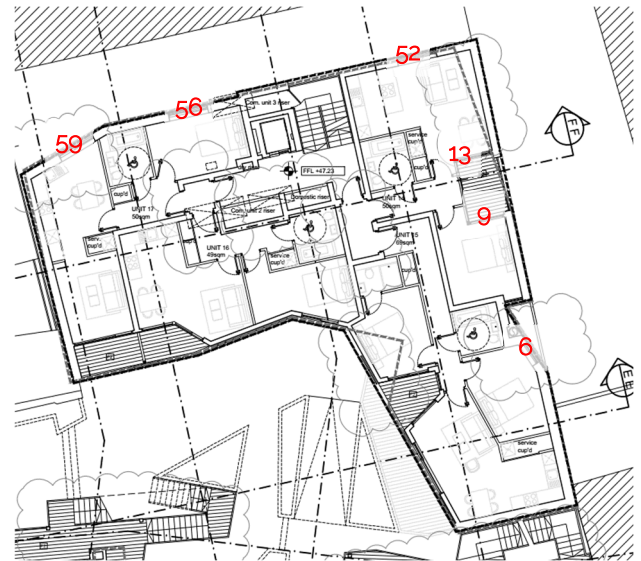
5.0 BRE Guidance Targets

- 5.1 The reference document for this analysis, BRE Digest 209, gives the methodology for undertaking the calculations. It also provides benchmark figures for the acceptable reduction in the daylight on existing properties which might be affected by development.
- 5.2 Specifically, the guidance gives figures for the VSC, NSL and APSH, as a percentage reduction that is "permissible" for the effect on existing windows.
- 5.3 It is worth noting the following statement in the Guidance introduction:
 - "The guide is intended for building designers and their clients, consultants and planning officials. The advice given here is not mandatory and this document should not be seen as an instrument of planning policy. Its aim is to help rather than constrain the developer.
 - Although it gives numerical guidelines, these should be interpreted flexibly because natural lighting is only one of the many factors in site layout design."
- 5.4 The relevant BRE recommendations for daylight and sunlight are:
 - The Vertical Sky Component measured at the centre of a window should be no less than 27%, or if reduced to below this, no less than 0.8 times the former value.
 - The area of the room beyond the No Sky Line should not be reduced to less than 80% of its former value.
 - The window should receive at least 25% of available annual sunlight hours and more than 5% during the winter months (September 21st to March 21st), or, where this is not the case, 80% of its former value.

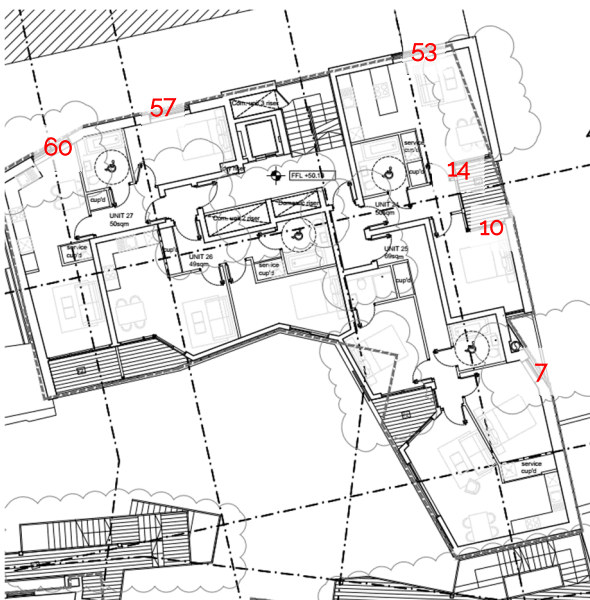
6.0 Window Schedules



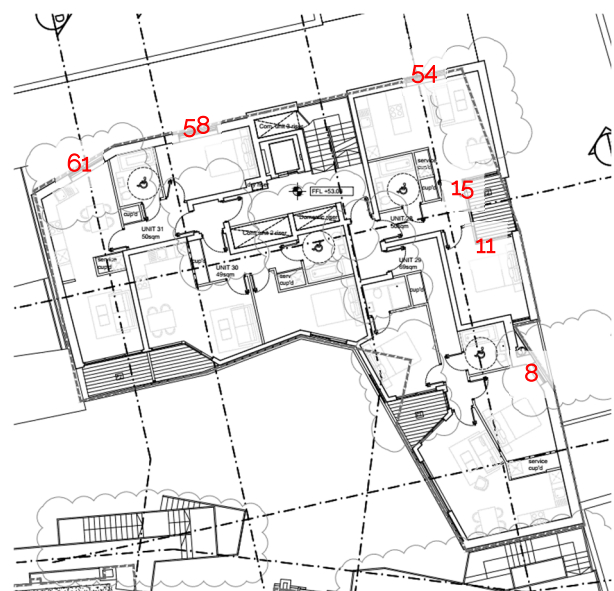
11-13 Kings Road (Rear)



Jacksons Corner Scheme – 2nd Floor
as Proposed (Part)



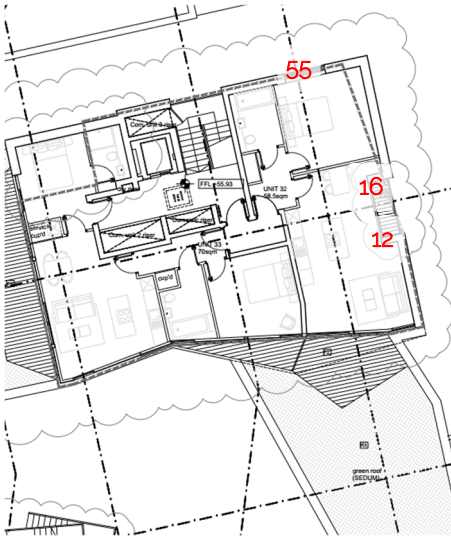
Jacksons Corner Scheme – 3rd Floor
as Proposed (Part)



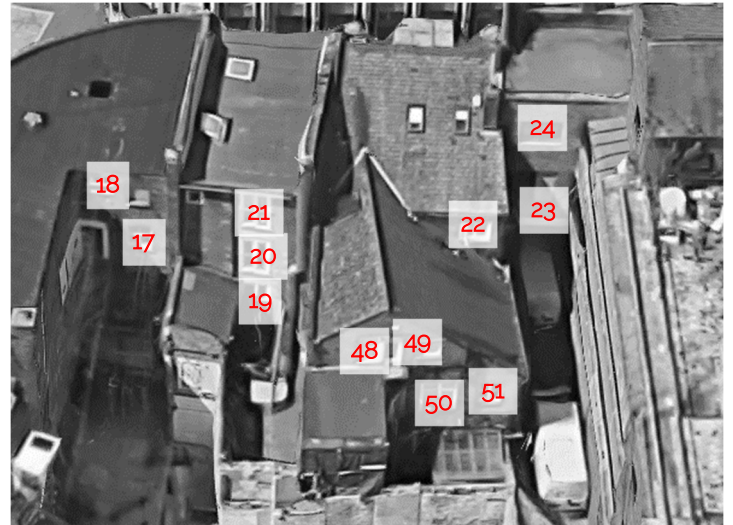
Jacksons Corner Scheme – 4th Floor
as Proposed (Part)

The window marked NE does not appear on the plan drawings of this development and is therefore assumed not exist any longer, on not be in use.

6.0 Window Schedules



Jacksons Corner Scheme – 5th Floor as Proposed (Part)



1-9 King Street & 7-8 High Street (Rear)



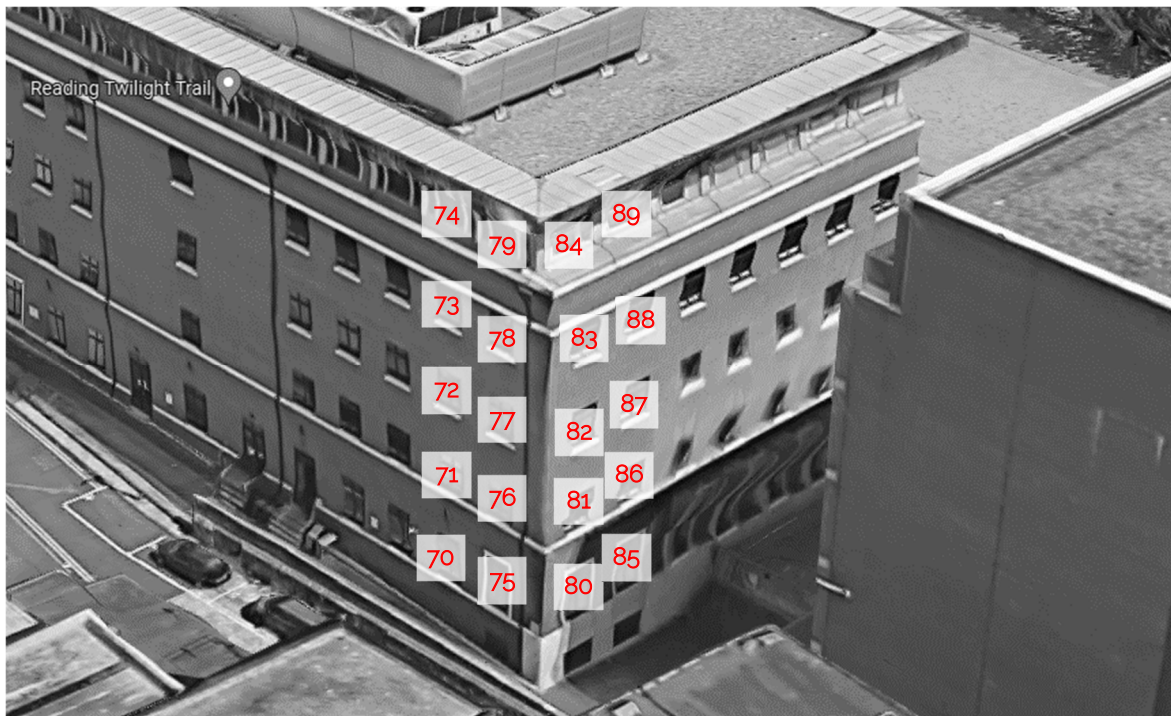
32-40 Market Place

6.0 Window Schedules



11-12 Market Place (Rear)

NB This property has applied for conversion to residential use. Windows 90 and 92 do not currently exist but are part of the application



1 Forbury Square

7.0 Daylight Impact Results – VSC Test

- 7.1 The Vertical Sky Component has been calculated for each of the 92 assessed windows for both the existing and proposed conditions.
- 7.2 As can be seen in the results below, the majority of windows (84%) retain in excess of 80% of their current values.
- 7.3 The windows which do not meet this target, are all either on the converted building at 11-13 Kings Road, or on the new development under construction to the south.
- 7.4 For these windows, floor plans are available of the affected rooms which allows a more detailed analysis using the No Sky Line test, shown below.
- 7.5 It should also be noted that the windows on the new Jacksons Corner scheme are, in some cases, extremely self-limiting in their design, being recessed into deep internal balconies.
- 7.6 This means that their existing VSC levels are very low, which exacerbates the impact of this proposal.
- 7.7 Equally, for windows 1-4, to the rear of 11-13 Kings Road, due to the urban location, existing levels are relatively low. However, due to the modest room sizes, served by generous windows, the No Sky Line test, which is a better representation of the daylight levels in the room, show that the actual loss of light in the room is low.

7.0 Daylight Impact Results – VSC Test

Vertical Sky Component				
Window	Existing VSC	Proposed VSC	% Retained	Meets BRE Guidance?
1	10.516	8.597	81.75%	Yes
2	13.191	10.575	80.17%	Yes
3	13.054	9.621	73.70%	No
4	17.232	13.992	81.20%	Yes
5	7.958	6.384	80.22%	Yes
6	17.527	11.858	67.66%	No
7	22.651	15.833	69.90%	No
8	25.695	19.583	76.21%	No
9	3.458	0.476	13.77%	No
10	4.065	1.186	29.16%	No
11	5.307	1.077	20.28%	No
12	9.900	1.816	18.34%	No
13	6.981	1.943	27.83%	No
14	14.375	4.159	28.93%	No
15	7.680	3.177	41.36%	No
16	15.333	8.494	55.40%	Yes
17	21.857	21.372	97.78%	Yes
18	23.347	22.610	96.84%	Yes
19	6.753	6.753	100.00%	Yes
20	20.259	20.086	99.15%	Yes
21	24.737	23.450	94.80%	Yes
22	19.308	18.250	94.52%	Yes
23	14.501	13.924	96.02%	Yes
24	20.771	19.899	95.80%	Yes
25	29.571	29.069	98.30%	Yes
26	28.207	27.624	97.93%	Yes
27	23.487	22.999	97.92%	Yes
28	27.114	26.527	97.84%	Yes
29	25.472	24.920	97.83%	Yes
30	27.561	26.913	97.65%	Yes

7.0 Daylight Impact Results – VSC Test

Vertical Sky Component				
Window	Existing VSC	Proposed VSC	% Retained	Meets BRE Guidance?
31	25.364	24.798	97.77%	Yes
32	27.464	26.809	97.61%	Yes
33	26.784	26.186	97.77%	Yes
34	29.036	28.367	97.70%	Yes
35	26.498	25.864	97.61%	Yes
36	28.771	28.101	97.67%	Yes
37	26.204	25.531	97.43%	Yes
38	28.500	27.847	97.71%	Yes
39	25.725	25.034	97.32%	Yes
40	27.305	26.664	97.65%	Yes
41	28.903	28.284	97.86%	Yes
42	25.905	25.268	97.54%	Yes
43	27.442	26.857	97.87%	Yes
44	28.995	28.449	98.12%	Yes
45	26.142	25.559	97.77%	Yes
46	27.625	27.097	98.09%	Yes
47	29.113	28.614	98.28%	Yes
48	5.348	5.144	96.19%	Yes
49	2.886	2.796	96.87%	Yes
50	5.857	5.357	91.45%	Yes
51	6.538	5.274	80.67%	No
52	16.074	10.028	62.38%	No
53	22.008	13.425	61.00%	No
54	27.365	16.188	59.15%	No
55	30.734	18.876	61.42%	Yes
56	16.583	14.581	87.93%	Yes
57	26.051	21.511	82.57%	Yes
58	31.310	25.211	80.52%	Yes
59	11.179	11.173	99.95%	Yes
60	21.697	21.310	98.22%	Yes
61	28.655	26.105	91.10%	Yes

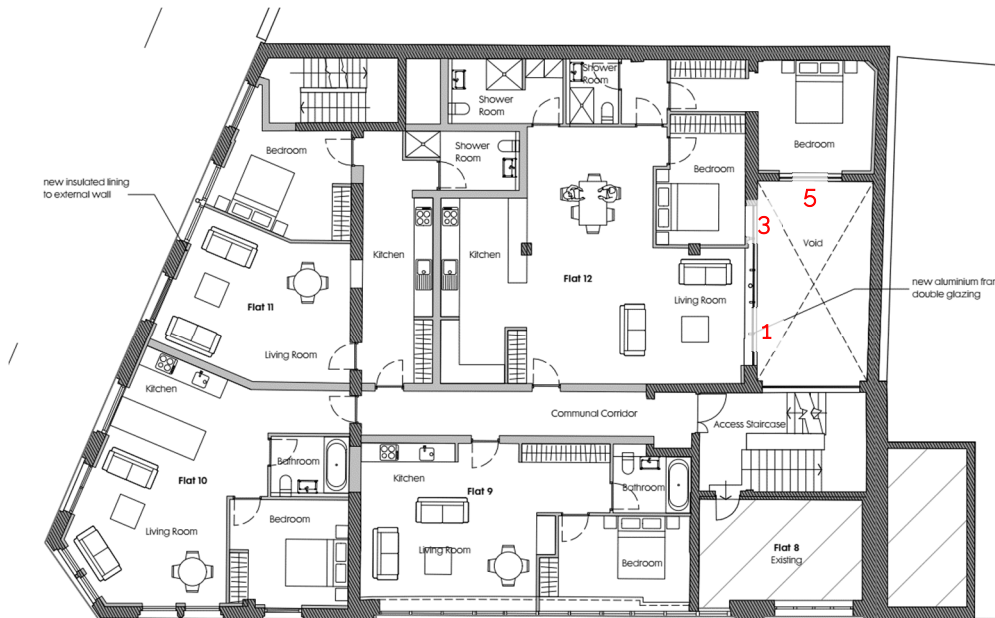
7.0 Daylight Impact Results – VSC Test

Vertical Sky Component				
Window	Existing VSC	Proposed VSC	% Retained	Meets BRE Guidance?
62	26.815	24.036	89.64%	Yes
63	29.445	25.961	88.17%	Yes
64	27.572	25.040	90.82%	Yes
65	30.011	26.996	89.95%	Yes
66	28.437	26.200	92.13%	Yes
67	30.696	28.168	91.76%	Yes
68	28.812	26.857	93.21%	Yes
69	30.941	28.796	93.07%	Yes
70	34.933	33.418	95.66%	Yes
71	36.222	34.679	95.74%	Yes
72	37.439	35.904	95.90%	Yes
73	38.420	36.989	96.28%	Yes
74	29.116	28.483	97.83%	Yes
75	34.612	32.810	94.79%	Yes
76	36.047	34.189	94.84%	Yes
77	37.400	35.539	95.03%	Yes
78	38.456	36.760	95.59%	Yes
79	30.250	29.491	97.49%	Yes
80	21.851	18.857	86.30%	Yes
81	24.762	21.684	87.57%	Yes
82	28.032	24.996	89.17%	Yes
83	31.390	28.765	91.64%	Yes
84	27.594	26.584	96.34%	Yes
85	19.736	17.291	87.61%	Yes
86	22.686	20.188	88.99%	Yes
87	26.103	23.666	90.66%	Yes
88	29.834	27.707	92.87%	Yes
89	28.235	27.369	96.93%	Yes
90	33.076	28.572	86.38%	Yes
91	33.359	29.465	88.33%	Yes
92	33.538	30.195	90.03%	Yes

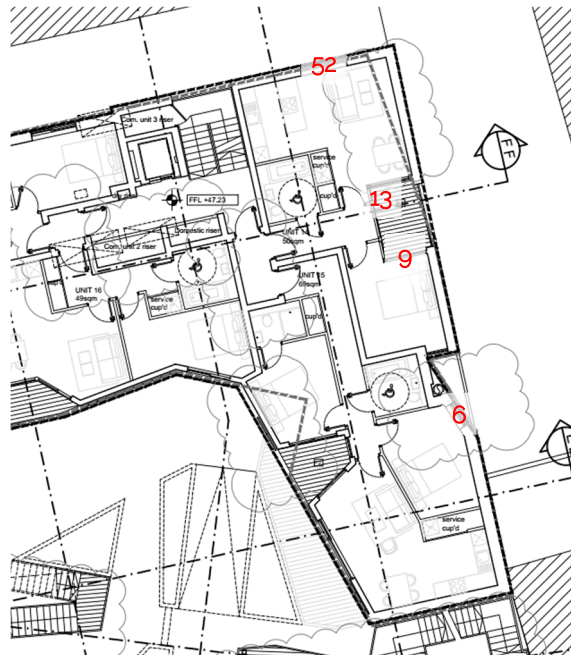
8.0 Daylight Impact Results – NSL Test

- 8.1 BRE guidance states that the No Sky Line can additionally be calculated "where neighbouring room layouts are known".
- 8.2 In this instance floor plans have been sourced for the consented proposal to the south of the site (Jacksons Corner) and the building at 11-13 Kings Road (shown below).
- 8.3 The calculations have only been undertaken where windows do not meet the VSC test.
- 8.4 NSL calculations have not been undertaken for other neighbours where floor plans could not be sourced.
- 8.5 The area of the room beyond the No Sky Line has been calculated for all relevant rooms, for both the existing and proposed conditions.
- 8.6 This test is more detailed and represents better the actual impact on a room, as it considers both the size of the room and the window.
- 8.7 As can be seen in the results below, of 12 rooms assessed, all retain in excess of 80% of their area within the No Sky Line. These rooms therefore meet the BRE guidance using this more detailed and representative test.
- 8.8 The scheme is compliant with BRE guidance when assessed using the No Sky Line test.

8.0 Daylight Impact Results – NSL Test

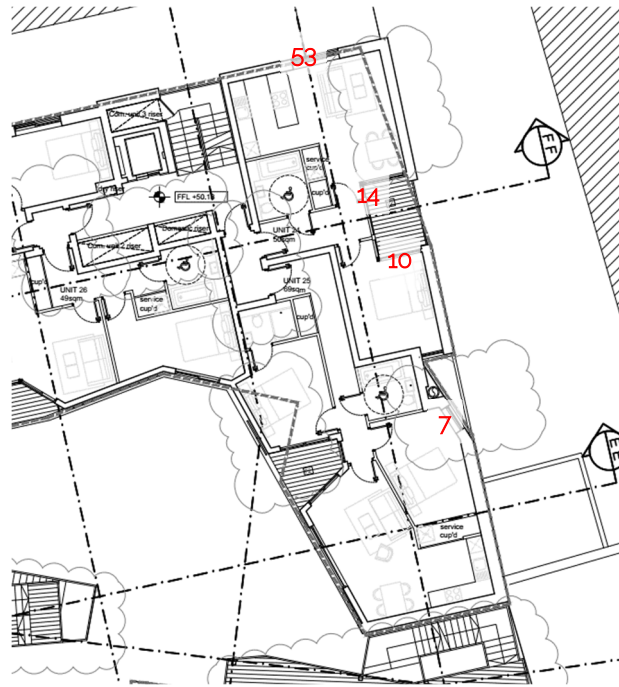


11-13 Kings Road – First Floor

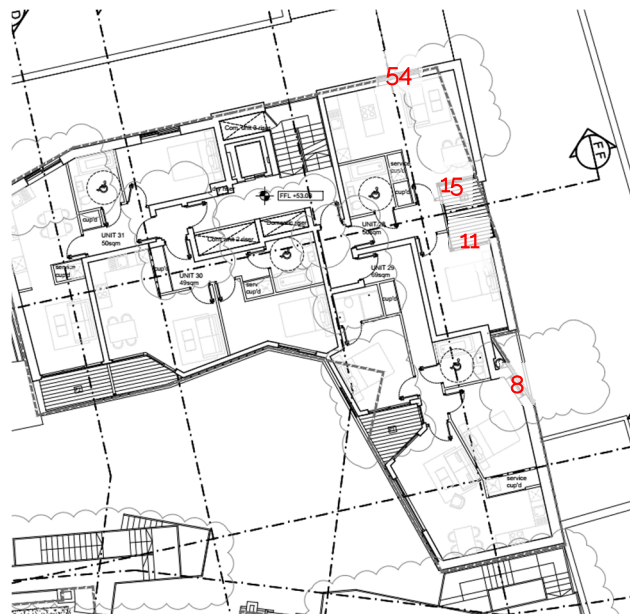


Jacksons Corner Scheme – 2nd Floor as Proposed (Part)

8.0 Daylight Impact Results – NSL Test

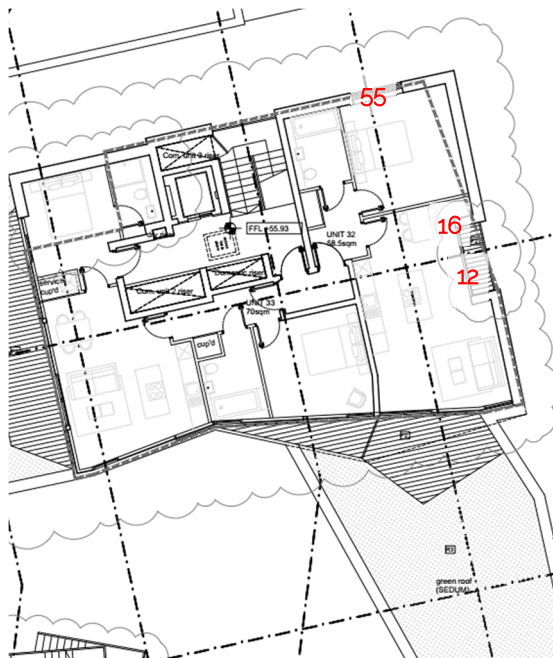


Jacksons Corner Scheme – 3rd Floor as Proposed (Part)



Jacksons Corner Scheme – 4th Floor as Proposed (Part)

8.0 Daylight Impact Results – NSL Test



Jacksons Corner Scheme – 5th Floor as Proposed (Part)

No Sky Line

Room	Window Ref	Room Served	Existing NSL (%)	Proposed NSL (%)	% Retained	Meets BRE Guidance?
1	3	Bedroom	71.2%	61.8%	86.80%	Yes
2	6	Bedroom	33.7%	27.3%	81.01%	Yes
3	7	Bedroom	42.5%	35.1%	82.59%	Yes
4	8	Bedroom	47.6%	42.7%	89.71%	Yes
5	9	Bedroom	31.9%	25.6%	80.25%	Yes
6	10	Bedroom	35.4%	29.3%	82.77%	Yes
7	11	Bedroom	38.5%	32.1%	83.38%	Yes
8	12 & 16	Kitchen/Living/Dining	64.8%	59.2%	91.36%	Yes
9	13 & 52	Kitchen/Living/Dining	67.9%	63.2%	93.08%	Yes
10	14 & 53	Kitchen/Living/Dining	70.5%	66.8%	94.75%	Yes
11	15 & 54	Kitchen/Living/Dining	74.5%	71.6%	96.11%	Yes
12	55	Bedroom	61.7%	56.4%	91.41%	Yes

9.0 Sunlight Impact Results

- 9.1 BRE guidance states that only windows which face within 90° of due south need be assessed for sunlight provision. In this instance, 43 windows fall into this category.
- 9.2 The Annual Probable Sunlight Hours has been calculated for each of these windows for both the existing and proposed conditions using the methodology described previously, both over the whole year, and through the "winter months" (September 21st until March 21st)
- 9.3 The BRE guidance states that the sun lighting may be adversely affected if the centre of the window:
- Receives less than 25% of annual hours or less than 5% of winter hours and
 - Receives less than 80% of its current sunlight hours during either period and
 - Has a reduction in sunlight over the whole year greater than 4% of annual probable sunlight hours
- 9.4 It is clear from the wording of the above that all three clauses need to be met to qualify as an adverse impact. Thus, if the window does not meet any one of these criteria, the impact is acceptable.
- 9.5 The results below show that all of the assessed windows retain 25% of sunlight hours annually and 5% over the winter months.
- 9.6 The scheme is therefore compliant with BRE guidance in relation to sunlight impacts.

9.0 Sunlight Impact Results

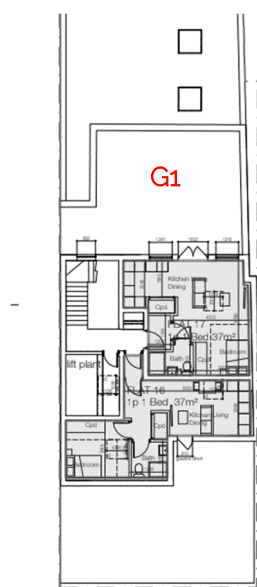
	Annual Sunlight Hours			Winter Sunlight Hours			
Window	Ex. Hrs Received (%)	Prop. Hrs Received	% Retained	Ex. Hrs Received	Prop. Hrs Received	% Retained	Meets Guidance?
25	52.807	51.351	N/A	18.988	18.988	N/A	Yes
26	51.698	49.134	N/A	21.206	21.206	N/A	Yes
27	27.166	26.681	N/A	6.376	6.376	N/A	Yes
28	39.570	37.214	N/A	8.732	8.732	N/A	Yes
29	40.818	39.432	N/A	13.375	13.375	N/A	Yes
30	43.867	43.174	N/A	14.068	14.068	N/A	Yes
31	40.748	39.016	N/A	13.098	13.098	N/A	Yes
32	43.728	43.035	N/A	13.999	13.999	N/A	Yes
33	43.936	41.511	N/A	14.692	14.692	N/A	Yes
34	46.916	45.184	N/A	15.315	15.315	N/A	Yes
35	42.758	41.788	N/A	14.276	14.276	N/A	Yes
36	45.877	44.006	N/A	14.969	14.969	N/A	Yes
37	41.580	40.818	N/A	13.444	13.444	N/A	Yes
38	44.283	43.313	N/A	14.276	14.276	N/A	Yes
39	29.522	28.067	N/A	6.514	6.514	N/A	Yes
40	31.532	30.631	N/A	7.069	7.069	N/A	Yes
41	34.165	33.888	N/A	7.623	7.623	N/A	Yes
42	29.591	28.274	N/A	6.514	6.445	N/A	Yes
43	31.532	30.561	N/A	7.069	7.069	N/A	Yes
44	34.304	33.611	N/A	7.623	7.623	N/A	Yes
45	30.561	29.660	N/A	6.445	6.376	N/A	Yes
46	32.294	31.532	N/A	6.930	6.861	N/A	Yes

9.0 Sunlight Impact Results

	Annual Sunlight Hours			Winter Sunlight Hours			
Window	Ex. Hrs Received (%)	Prop. Hrs Received	% Retained	Ex. Hrs Received	Prop. Hrs Received	% Retained	Meets Guidance?
47	34.789	33.888	N/A	7.692	7.554	N/A	Yes
70	46.085	41.164	N/A	9.286	5.221	N/A	Yes
71	50.104	43.105	N/A	13.306	6.306	N/A	Yes
72	51.421	45.599	N/A	14.622	8.801	N/A	Yes
73	51.975	48.579	N/A	15.177	11.781	N/A	Yes
74	34.304	34.304	N/A	12.543	12.543	N/A	Yes
75	45.669	40.125	N/A	8.870	5.506	N/A	Yes
76	49.272	42.897	N/A	12.474	6.098	N/A	Yes
77	51.490	45.184	N/A	14.692	8.385	N/A	Yes
78	51.975	48.302	N/A	15.177	11.504	N/A	Yes
79	37.145	37.145	N/A	14.345	14.345	N/A	Yes
80	55.579	49.896	N/A	9.633	5.207	N/A	Yes
81	61.053	56.064	N/A	11.920	6.930	N/A	Yes
82	67.152	60.915	N/A	15.107	8.870	N/A	Yes
83	70.617	66.597	N/A	17.048	13.028	N/A	Yes
84	52.391	52.391	N/A	28.413	28.413	N/A	Yes
85	53.361	48.579	N/A	8.039	5.301	N/A	Yes
86	60.291	55.024	N/A	11.296	6.029	N/A	Yes
87	65.627	59.806	N/A	13.444	7.623	N/A	Yes
88	69.369	66.459	N/A	15.800	12.890	N/A	Yes
89	55.925	55.925	N/A	28.413	28.413	N/A	Yes

10.0 Sunlight To Neighbouring Gardens

- 10.1 Residential gardens are generally assessed using the sunlight hours test, but only on March 21st. The guidance describes a well-lit space as being one which receives at least 2 hours of direct sunlight on this date over 50% of its area.
- 10.2 BRE guidance also uses the "80%" rule for this test, whereby the effects are considered acceptable if the remaining sunlight is in excess of 80% of the existing level. This clause only applies if the space is reduced to less than 50% of the area well sunlit.
- 10.3 This assessment has been run for the proposed roof terrace of the neighbouring property at 11-12 Market Place to the north of the site. Although this area is not marked as a terrace, it is assumed it may be used as such, due to the outward opening doors.
- 10.4 As can be seen, the neighbouring roof terrace retains over 80% of its existing values and the scheme is therefore compliant with BRE guidance.



11-12 Market Place – 4th Floor as Proposed

Amenity Sunlight Hours				
Garden	Existing Area Receiving 2 Hours	Proposed Area Receiving 2 Hours	% Retained	Meets BRE Guidance?
G1	76.52%	63.55%	83.05%	Yes

11.0 Daylight within the Proposal

- 11.1 Daylight Factor (DF) values have been calculated for the habitable rooms in the proposed new units, in accordance with BRE and BS EN 17037 (with UK Annex) - 2018 methodology
- 11.2 The calculations have assumed a white ceiling, cream walls and mid-grey carpet or wooden floor using reflectance values taken from the BS EN 170437 Guidance.
- 11.3 As this is an extension scheme, it falls under the category of "hard to light" dwellings and therefore an alternative target can be used. The minimum DF_T values for various UK locations and room types are provided below:

Table C3 – Target daylight factors (D_T) to achieve over at least 50% of the assessment grid in UK domestic habitable rooms with vertical and/or inclined daylight apertures			
Location	D_T for 100 lx (Bedroom)	D_T for 150 lx (Living room)	D_T for 200 lx (Kitchen)
St Peter (Jersey)	0.6%	0.9%	1.2%
London (Gatwick Airport)	0.7%	1.1%	1.4%
Birmingham	0.6%	0.9%	1.2%
Hemsby (Norfolk)	0.6%	0.9%	1.3%
Finningley (Yorkshire)	0.7%	1.0%	1.3%
Aughton (Lancashire)	0.7%	1.1%	1.4%
Belfast	0.7%	1.0%	1.4%
Leuchars (Fife)	0.7%	1.1%	1.4%
Oban	0.8%	1.1%	1.5%
Aberdeen	0.7%	1.1%	1.4%

- 11.4 It is deemed by the guidance that if the minimum DF_T criteria are met, then the occupiers of the dwelling will have sufficient daylight. As can be seen from the results below that all assessed habitable rooms meet and exceed the minimum levels of internal daylight.