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Charlotte Orrell
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By Email only: charlotte.orrell@dp9.co.uk

26th October 2023

Dear Charlotte,

Re: Daylight & Sunlight for Barrie House, St John's Wood, London

We have been provided with a new scheme which shows minor amendments to the internal units of the consented scheme which has been prepared by Carbogno Ceneda Architects.

It is understood that you will be applying to the Local Authority for a Non-Material Amendment (NMA) and as part of that application, you have asked me to look at whether there will be any additional material alterations in daylight and sunlight levels reported for the consented application in 2017.

We note that the main changes are localised to the scheme layouts rather than the height, bulk, and massing. Although, there is a very small amendment to the positioning of the lift over run, however, the difference in position is too small an area to make any difference in daylighting terms to any of the neighbours. Therefore, the results presented in the 2017 report still stand when considering the neighbours, however, the internal daylight will need to be reviewed.

Since the 2017 report, the BRE Guidelines were updated (in June 2022), which effectively omitted the use of the Average Daylight Factor (ADF) assessment from internal daylighting and replaced it with either the Spatial Daylight Autonomy (SDA) or Daylight Factor (DF) assessments.

The SDA method involves comprehensive testing factoring in climate files for the location of the site and calculates the illuminance from daylight at each point on an assessment grid within the room at an hourly interval within a typical year. The target illuminance should be achieved across at least half of the reference plane (50%) in any daylight space for at least half the daylight hours. The National Annex A of BS EN 17037 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 half (50%) of the assessment points in the room for at least half the daylight hours. The lux rates are summarised below.

The BS EN 17037 National Annex provides the following minimum target illuminance for room types in UK dwellings:

- Bedrooms = 100 lux
- Living Rooms = 150 lux
- Kitchens = 200 lux

As well as lux values, the SDA method requires reflectance values to be set within the modelling prior to running any assessments. We have considered the following recommended default reflectance values:

Reflectance	Default value
Interior walls	0.5
Ceilings	0.7
Floors	0.2
Exterior walls and obstructions	0.3
Exterior Ground	0.2

Daylight Factor (DF) method

This method involves carrying out daylight factor calculations at each assessment point on an assessment grid. It is the illuminance at a particular point along the reference plane in a space, divided by the illuminance on an unobstructed horizontal surface outdoors. The CIE standard overcast sky is used, and the ratio is usually expressed as a percentage.

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The target daylight factor is categorised into three categories:

Level of Recommendation	Target DF for 50% of assessment grid	Target DF for 95% of assessment grid
Minimum	2.1%	0.7%
Medium	3.5%	2.1%
High	5.3%	3.5%

The daylight factor method does not consider orientation or reflectance and is less computer intensive, so it is a general rule that the SDA method is more accurate as it considers recorded climate files, it is based on orientation, and factors in reflectance values.

We have therefore considered SDA only for our daylight assessment.

In order to show how the result present against the consented scheme, we have prepared a comparative assessment for both the ADF and SDA results.

The below table shows the ADF results.

Average Daylight Factor (ADF)

12th Oct 2023

Floor	Room Ref	Room Use	Consented Results (ADF)	Meets BRE	October 23 Results (ADF)	Meets BRE
Basement	R1	Bedroom	1.18	Yes	1.21	Yes
	R2	Bedroom	5.00	Yes	3.21	Yes
	R3	Bedroom	4.13	Yes	3.07	Yes
	R4	Bedroom	3.30	Yes	3.78	Yes
	R5	Bedroom	2.25	Yes	3.11	Yes
	R6	Bedroom	0.81	No	0.92	No
	R7	Bedroom	4.28	Yes	4.06	Yes
	R8	Bedroom	4.89	Yes	4.04	Yes
	R9	Bedroom	1.28	Yes	1.56	Yes
Ground	R1	LKD	3.92	Yes	3.67	Yes
	R2	LKD	6.90	Yes	6.17	Yes
	R3	LKD	5.64	Yes	5.74	Yes
	R4	LKD	2.69	Yes	2.86	Yes
	R5	LKD	7.46	Yes	5.77	Yes
First	R1	Bathroom	3.75	Yes	N/A	N/A

	R2	LKD	5.99	Yes	4.49	Yes
	R3	Bedroom	5.25	Yes	4.31	Yes
	R4	Bedroom	4.68	Yes	3.76	Yes
	R5	LKD	5.17	Yes	4.59	Yes
	R6	Bedroom	3.27	Yes	2.48	Yes
Second	R1	Bedroom	3.90	Yes	2.71	Yes
	R2	LKD	6.55	Yes	4.94	Yes
	R3	Bedroom	5.83	Yes	4.87	Yes
	R4	Bedroom	5.18	Yes	4.19	Yes
	R5	LKD	5.59	Yes	4.83	Yes
	R6	Bedroom	3.49	Yes	2.65	Yes
Third	R1	Bedroom	3.76	Yes	6.29	Yes
	R2	Bedroom	5.84	Yes	5.87	Yes
	R3	LKD	7.60	Yes	5.27	Yes

As it can be seen from the above, the same room falls short which is identified as R6 on the basement level. Although, the result does improve slightly following these chances and goes from 0.81 ADF to 0.92.

We have also carried out the same comparative assessment for the daylight SDA assessment, which is presented below.

Spatial Daylight Autonomy (SDA)

12th Oct 2023

Floor	Room Ref	Room Use	Consented Results (SDA)	Meets BRE	October 23 Results (SDA)	Meets BRE
Basement	R1	Bedroom	14%	No	16%	No
	R2	Bedroom	60%	Yes	74%	Yes
	R3	Bedroom	80%	Yes	69%	Yes
	R4	Bedroom	100%	Yes	70%	Yes
	R5	Bedroom	99%	Yes	55%	Yes
	R6	Bedroom	36%	No	30%	No
	R7	Bedroom	96%	Yes	93%	Yes
	R8	Bedroom	88%	Yes	77%	Yes
	R9	Bedroom	36%	No	22%	No
Ground	R1	LKD	57%	Yes	66%	Yes
	R2	LKD	75%	Yes	78%	Yes
	R3	LKD	76%	Yes	82%	Yes
	R4	LKD	42%	No	65%	Yes
	R5	LKD	100%	Yes	100%	Yes

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First	R1	LKD	100%	Yes	100%	N/A
	R2	LKD	100%	Yes	100%	Yes
	R3	Bedroom	97%	Yes	98%	Yes
	R4	Bedroom	100%	Yes	100%	Yes
	R5	LKD	52%	Yes	53%	Yes
	R6	Bathroom	N/A	N/A	N/A	N/A
Second	R1	Bedroom	100%	Yes	82%	Yes
	R2	LKD	100%	Yes	100%	Yes
	R3	Bedroom	100%	Yes	100%	Yes
	R4	Bedroom	97%	Yes	98%	Yes
	R5	LKD	100%	Yes	100%	Yes
	R6	Bedroom	71%	Yes	68%	Yes
Third	R1	Bedroom	100%	Yes	100%	Yes
	R2	Bedroom	100%	Yes	100%	Yes
	R3	LKD	92%	Yes	100%	Yes

The results show that one extra room falls short for the consented scheme which is located on the ground floor. This room will now pass the assessment with these new amendments, which is due to the room getting smaller.

In summary, the results preform slightly better than the consented scheme with one room falling short for the ADF assessment, but showing a better result overall, and three shortfalls are noted for the SDA assessment whereby the consented scheme was showing four.

Yours sincerely

Stephen Parker MRICS