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Daylight and Sunlight Report
for the Proposed Development at
FCL Motors, High Street, Yiewsley, Middlesex, UB7 8AA

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1. Introduction

1.1 Scope of Service

1.1.1 We have been instructed by Gillett Macleod Partnership to determine the potential daylighting availability of the proposed accommodation at FCL Motors, High Street, Yiewsley, Middlesex, UB7 8AA.

1.2 Assessment

1.2.1 To ensure that this assessment has been appropriately considered, daylight and sunlight assessments have been undertaken in accordance with the Building Research Establishment Report 'Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice' 2022 (the "BRE guide"). It is intended to be used with BS EN 17037, and its UK National Annex, which gives specific minimum recommendations for habitable rooms in dwellings in the United Kingdom.

1.2.2 The standards and tests applied within this assessment are briefly described in Section 3.

1.2.3 The existing buildings adjacent to the site are shown on the Site Location Plan below.

Site Location Plan

1.2.4 The existing buildings adjacent to the site considered for this report are listed in the following table. Some of these buildings may not require a comprehensive assessment with the reasons for these findings given later in this report under section 3: Results and Consideration.

Adjacent Building Summary Table		
Name/Address of Building	**Assumed Use of Building**	**Position in Relation to the Proposed Development**
Baroque Court	Residential	North

1.3 Limitations

1.3.1 Our assessment is based on the proposed development drawings by Gillett Macleod Partnership.

1.3.2 Topographical survey information was not provided by Gillett Macleod Partnership in relation to the existing buildings on site. Where buildings were not surveyed, the locations and heights were derived from site photographs and oblique aerial photography.

1.3.3 We refer you to the drawings which accompany this report for a list of the third party information relied upon which our 3D computer model and resultant analyses are based.

2. Assessment, Results and Consideration

2.1 Proposed Accommodation

2.1.1 The proposed accommodation comprises self-contained flats at ground to third floor level, see accompanying drawing 1974/DSO/01.

2.1.2 For our 3D assessment model, we have modelled the proposed accommodation at ground and first floor levels in detail, including the balconies at first and second floor levels. We have also modelled all the surrounding buildings in the immediate vicinity, including the buildings on the opposite side of the High Street/Falling Lane.

2.1.3 Gillett Macleod Partnership have carefully considered this site and have incorporated elements within the designs to maximise ambient daylighting potential. These include: -

- Multiple windows to rooms where appropriate
- Light coloured internal finishes

2.1.4 We have been supplied with technical specifications of those light coloured internal finishes. The floor will be similar to Kahr's Oak Bright, which comes with a high Light Reflectance Value (LRV) of 0.61, and a Benjamin Moore Chantilly Lace white paint, which comes with a LRV of 92.2.

2.1.5 The BRE guidelines, however, states at paragraph C24 –

"Where surface finishes have been specified or measured on site, they can be used in the calculations with appropriate factors for maintenance and furniture. To allow for these factors, maximum reflectances for white painted surfaces in the calculations should not exceed 0.8 indoors…and maximum reflectances for light wood floors should not exceed 0.4."

2.1.6 We have therefore reduced the LRV of the internal surface finishes accordingly.

2.1.7 For the window glass, we use a generic glass transmission of 0.64, a value of 0.2 reflectance for the ground, and 0.2 for exterior obstructions.

2.1.8 Turning now to the Spatial Daylight Autonomy (SDA) assessment results: -

2.1.9 We undertook the Illuminance Method of assessment per the BS EN 17037, and its UK National Annex.

2.1.10 It states that illuminance recommendations of 100 lux in bedrooms, 150 lux in living rooms and 200 lux in kitchens/KLDs are the median illuminances, to be exceeded over at least 50% of the assessment points (assessment area) in the room for at least half of the daylight hours.

2.1.11 We now refer you to the accompanying drawing 1974/DSO/01 at Appendix B and the results table at Appendix C.

2.1.12 We found that all habitable rooms assessed achieved the required lux to between 53% and 100% of their areas for at least half of the daylight hours in a typical year.

2.1.13 Given that the ground and first floor units will meet the BRE criteria it naturally follows that the second and third floor units would as well.

2.1.14 The proposed accommodation will therefore be compliant with BS EN 17037 and its UK National Annex.

3. Conclusion

3.1 Daylight and Sunlight

3.1.1 For the proposed accommodation, all habitable rooms will be compliant with BS EN 17037 and its UK National Annex.

3.2 Generally

3.2.1 When considering the numerical results, it is important to approach and interpret the BRE guidelines flexibly along with the following material mitigating factors:

*The BRE guidelines recognises that buildings located uncommonly close to the site boundary, as is the case here, may be considered as "bad" neighbours, taking more than their fair share of light. Accordingly, a greater reduction in daylight or sunlight may be unavoidable and so the local authority may wish to apply different target values.
*Where buildings match the height and proportions of existing surrounding buildings some transgressions will be inevitable.
* Also, where the sites are undeveloped or are infill sites, again a higher degree of obstruction may be unavoidable, leading to a higher frequency of non-compliance
*Kitchens and bedrooms are given less weighting than that of a living room.

Appendix A

BRE Assessments

BRE Assessments

Daylighting Compliance in Proposed Accommodation

The BRE guidelines states at paragraphs C2 and C15:

"C2…For daylight provision in buildings, BS EN 17037 provides two methodologies…" - the Illuminance Method, and the Daylight factor Method. Only one of these methods is required to comply with BS EN 17037 and its UK National Annex.

"C15 A UK National Annex gives specific minimum recommendations for habitable rooms in dwellings in the United Kingdom. These are intended for 'hard to light' dwellings, for example in basements or with significant external obstructions or with tall trees outside, or for existing buildings being refurbished or converted into dwellings. The National Annex therefore provides the UK guidance on minimum daylight provision in all UK dwellings."

<u>The Illuminance Method - BRE Guidelines paragraphs C2, C4 and C16</u>

The illuminance method is based on "C2…target illuminances from daylight to be achieved over specified fractions of the reference plane (a plane at table top height covering the room) for at least half of the daylight hours in a typical year."

"C4 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."

"C16 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. The recommended levels over 95% of a reference plane need not apply to dwellings in the UK."

<u>The Daylight Factor Method – BRE Guidelines paragraphs C2, C18, C19 and Table C3</u>

The daylight factor method is based on "C2…calculating the daylight factors achieved over specified fractions of the reference plane."

"C18 The UK National Annex gives the latitude, median external diffuse and global illuminances for various UK locations, as well the daylight factor targets corresponding to the target illuminances as shown in Table C3. The targets for the latitude nearest to the assessment site should be used."

"C19 Table C3 shows the daylight factor targets to be achieved over at least 50% of the assessment grid in domestic habitable rooms with vertical and/or inclined daylight apertures. The UK National Annex[C1] gives alternative target values for rooms with diffusing horizontal rooflights."

Table C3 states, for example, that target Daylight Factors D_T for London to be achieved over at least 50% of the assessment grid are as follows.

Location	D_T for 100lx (Bedroom)	D_T for 100lx (Living room)	D_T for 100lx (Kitchen)
London (Gatwick Airport)	0.7%	1.1%	1.4%

Appendix B

Context Drawings

Appendix C

Proposed Accommodation Results

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Spatial Daylight Autonomy Assessment (BS_EN17037) - Illuminance Method

								Criteria				
Floor Ref	**Room Ref**	**Property Type**	**Room Use**	**Room Area m2**	**Effective Area**	**Area Meeting Req Lux**	**% of Area Meeting Req Lux**	**Req Lux**	**Req % of Effective Area**	**Req % of Daylight Hours**	**Daylight Hours**	**Meets Criteria**
Proposed Accommodation												
Ground	R1	LKD	28.03	20.51	262	18.77	91%	200	50%	50%	4380	YES
	R2	Bedroom	19.57	13.63	310	13.11	96%	100	50%	50%	4380	YES
	R3	Bedroom	14.25	10.08	480	10.08	100%	100	50%	50%	4380	YES
	R4	LKD	23.83	17.87	212	9.55	53%	200	50%	50%	4380	YES
	R5	LKD	19.43	13.44	425	10.44	78%	200	50%	50%	4380	YES
	R6	Bedroom	9.04	5.75	139	5.74	100%	100	50%	50%	4380	YES
	R7	Bedroom	18.20	13.19	707	13.19	100%	100	50%	50%	4380	YES
	R8	Bedroom	14.78	10.39	466	10.39	100%	100	50%	50%	4380	YES
	R9	LKD	21.27	15.25	362	10.76	71%	200	50%	50%	4380	YES
	R10	LKD	31.63	25.23	224	15.42	61%	200	50%	50%	4380	YES
	R11	Bedroom	11.63	7.89	245	7.89	100%	100	50%	50%	4380	YES
	R12	LKD	34.76	27.02	209	14.94	55%	200	50%	50%	4380	YES
	R13	Bedroom	11.30	7.54	212	7.54	100%	100	50%	50%	4380	YES
	R14	Bedroom	16.19	11.45	456	11.45	100%	100	50%	50%	4380	YES
First	R1	LKD	23.64	16.84	440	16.84	100%	200	50%	50%	4380	YES
	R2	Bedroom	15.29	10.78	436	10.78	100%	100	50%	50%	4380	YES
	R3	Bedroom	14.15	9.47	513	9.47	100%	100	50%	50%	4380	YES
	R4	LKD	27.01	20.75	250	12.93	62%	200	50%	50%	4380	YES
	R5	LKD	27.62	21.25	461	21.25	100%	200	50%	50%	4380	YES
	R6	Bedroom	7.99	4.85	480	4.85	100%	100	50%	50%	4380	YES
	R7	Bedroom	13.25	9.07	580	9.07	100%	100	50%	50%	4380	YES
	R8	Bedroom	14.74	10.38	488	10.38	100%	100	50%	50%	4380	YES
	R9	LKD	24.36	18.03	385	13.36	74%	200	50%	50%	4380	YES
	R10	Bedroom	13.73	9.46	570	9.46	100%	100	50%	50%	4380	YES
	R11	Bedroom	10.55	6.95	592	6.95	100%	100	50%	50%	4380	YES
	R12	LKD	27.76	21.49	335	21.49	100%	200	50%	50%	4380	YES
	R13	LKD	27.39	20.83	328	20.83	100%	200	50%	50%	4380	YES
	R14	Bedroom	9.06	5.23	531	5.23	100%	100	50%	50%	4380	YES
	R15	Bedroom	17.83	12.82	118	7.63	60%	100	50%	50%	4380	YES
	R16	LKD	31.62	25.22	248	17.59	70%	200	50%	50%	4380	YES
	R17	Bedroom	11.62	7.89	238	7.89	100%	100	50%	50%	4380	YES
	R18	LKD	24.53	18.34	596	18.34	100%	200	50%	50%	4380	YES
	R19	Bedroom	11.53	7.47	416	7.47	100%	100	50%	50%	4380	YES
	R20	LKD	30.81	24.21	491	24.21	100%	200	50%	50%	4380	YES