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Alexander MacGregor
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26 October 2018

Dear Alexander,

Re: Arlington Works – Internal daylight and sunlight assessment

Further to your recent instructions we have prepared an assessment of the daylight and sunlight levels within the proposed new apartments at Arlington Works, Twickenham. Our initial assessments have focused on the most constrained units on the ground floor of the development, namely units 1,2,3 & 22, to ensure that compliance can be met in these areas. These results can then be used to extrapolate a likely level of compliance throughout the remainder of the development.

Guidance

The methodology and criteria used for these assessments is provided by the Building Research Establishment's guidance 'Site layout planning for daylight and sunlight: a guide to good practice' (BRE 2011) and the British Standard BS8206 Part 2: Code of practice for daylight & sunlight. These documents are the accepted methodology used by local authorities for assessing daylight and sunlight in relation to new developments. They provide methods for the calculation of daylight and sunlight amenity provided within proposed new dwellings.

Daylight to new dwellings

The ADF test quantifies the average illuminance within a room as a proportion of the illuminance available to an unobstructed point outdoors under a sky of known luminance and luminance distribution. It considers the physical nature of the room behind the window, including; size, window transmittance, and surface reflectivity. The following inputs have been used for the calculation of ADF within the proposed rooms: -

Internal reflectance of rooms	Walls - 0.8 (light coloured paint) Floor – 0.4 (light coloured carpet) Ceiling – 0.85 (White paint)
Window maintenance factor	= 0.8
Window transmittance	= 0.68 (Double Glazed)

The guidance suggests the following ADF levels for rooms of main habitable use: - 1% for Bedrooms, 1.5% for Living Rooms and 2.0% for Kitchens. Ancillary rooms, circulation space and bathrooms are not considered relevant for assessment following the BRE methodology. Where rooms have more than one use it is common practice to apply the criteria relevant to the predominant use of the space.

In some cases where deep open plan living/kitchen/dining rooms are provided, kitchens areas located at the rear of the rooms would not have an expectation for natural light. As such these rooms have been assigned a target of 1.5% to ensure that the living space is sufficiently lit. It may be that the generous size of these multi use rooms would drive lower ADF levels. In such cases the kitchens at the rear of the rooms have been notionally internalised and the remaining living area assessed with a target ADF for its use (1.5%).

Sunlight to new dwellings

For sunlight the APSH test calculates the percentage of statistically probable hours of sunlight received by each window in both the summer and winter months. March 21st through to September 21st is considered the summer period while September 21st to March 21st is considered the winter period. The BRE guidelines suggest that the main living rooms within new buildings should achieve at least 25% of annual sunlight hours, with 5% during the winter period.

Results

Daylight

The results of the ADF assessment demonstrate that all habitable rooms within the chosen units will receive levels of ADF well in excess of the criteria for their respective uses. I.e. 1.5% for living rooms or 1% for bedrooms.

Whilst we have not performed ADF calculations for all habitable rooms in the development, the results of this assessment prove that the most constrained rooms receive good levels of daylight in excess of BRE criteria. As such we predict that the levels of daylight provided within the remainder of the development will also comply with the BRE guidance and thus with local planning policy.

Sunlight

Results of the total and winter APSH assessments demonstrate that two of the four living rooms will experience high levels of sunlight, in excess of the BRE targets. The remaining two living rooms, located in Units 2 and 3, will also experience greater levels of winter sunlight than the BRE target (7% and 11%, where the target is 5%). Both fall slightly short of the total sunlight target receiving 13% and 14% respectively, where the BRE suggests 25%.

Sunlight to these two living rooms is somewhat restricted by the orientation of the building, which means these windows are south-east facing, and by the provision of overhanging balconies to units above. Compliance with the BRE and BS sunlight targets is entirely dependent upon having an unobstructed south-facing aspect. It cannot be improved by increasing the size of glazing or changing room dimensions.

Both the BRE and BS guidance recognise that providing an unobstructed south-facing orientation to all units is not possible where developments are of a larger, urban scale. Moreover, the presence of balconies above

the windows obstructs views of the upper part of the sky, where higher-angled summer sunlight should be received from. Clearly, there is a trade-off between the amenity provided by the balconies, which will receive very good sunlight, and the lower levels of summer sunlight to windows behind.

The BRE guide recognises that: - *"For larger developments of flats, especially those with site constraints, it may not be possible to have every living room facing within 90 degrees of due south."*

The British Standard guidance BS8206 part 2 gives the following: - *"The degree of satisfaction is related to the expectation of sunlight. If a room is necessarily north facing or if the building is in a densely-built urban area, the absence of sunlight is more acceptable than when its exclusion seems arbitrary."*

Conclusion

We have assessed the daylight and sunlight levels within the most constrained ground-floor units within the Arlington Works development using the ADF and APSH tests set out within the BRE guidance 'Site layout planning for daylight and sunlight: a guide to good practice' (BRE, 2011) and the British Standard document BS8206 pt2.

The results of the daylight assessment demonstrate that all habitable rooms will experience ADF levels in excess of the BRE targets. The sunlight assessment has shown that all living rooms will have good levels of winter APSH, with the exception of two living rooms that fall below the total annual target, whilst exceeding the winter sunlight target. Both of these rooms are constrained by overhanging balconies and by their orientation.

Para 123(c) of the National Planning Policy Framework (DHCLG - 2018) states: -

"... when considering applications for housing, authorities should take a flexible approach in applying policies or guidance relating to daylight and sunlight, where they would otherwise inhibit making efficient use of a site (as long as the resulting scheme would provide acceptable living standards)."

All of the proposed units are shown to have good levels of daylight, good levels of winter sunlight and balconies that receives good levels of summer sunlight. Furthermore, at least one habitable room within each apartment will receive sunlight for part of each day., meaning that the proposal complies with the Mayor of London's sunlight targets, set out within the Housing SPG Standard 32. On this basis, the current proposals are consistent with local planning policy and with policy set out by the Mayor of London and Secretary of State for Housing, Communities and Local Government.

I trust the above provides the information you need at this time, but please let me know should you have any questions.

Yours sincerely,



Ian Thody
Director



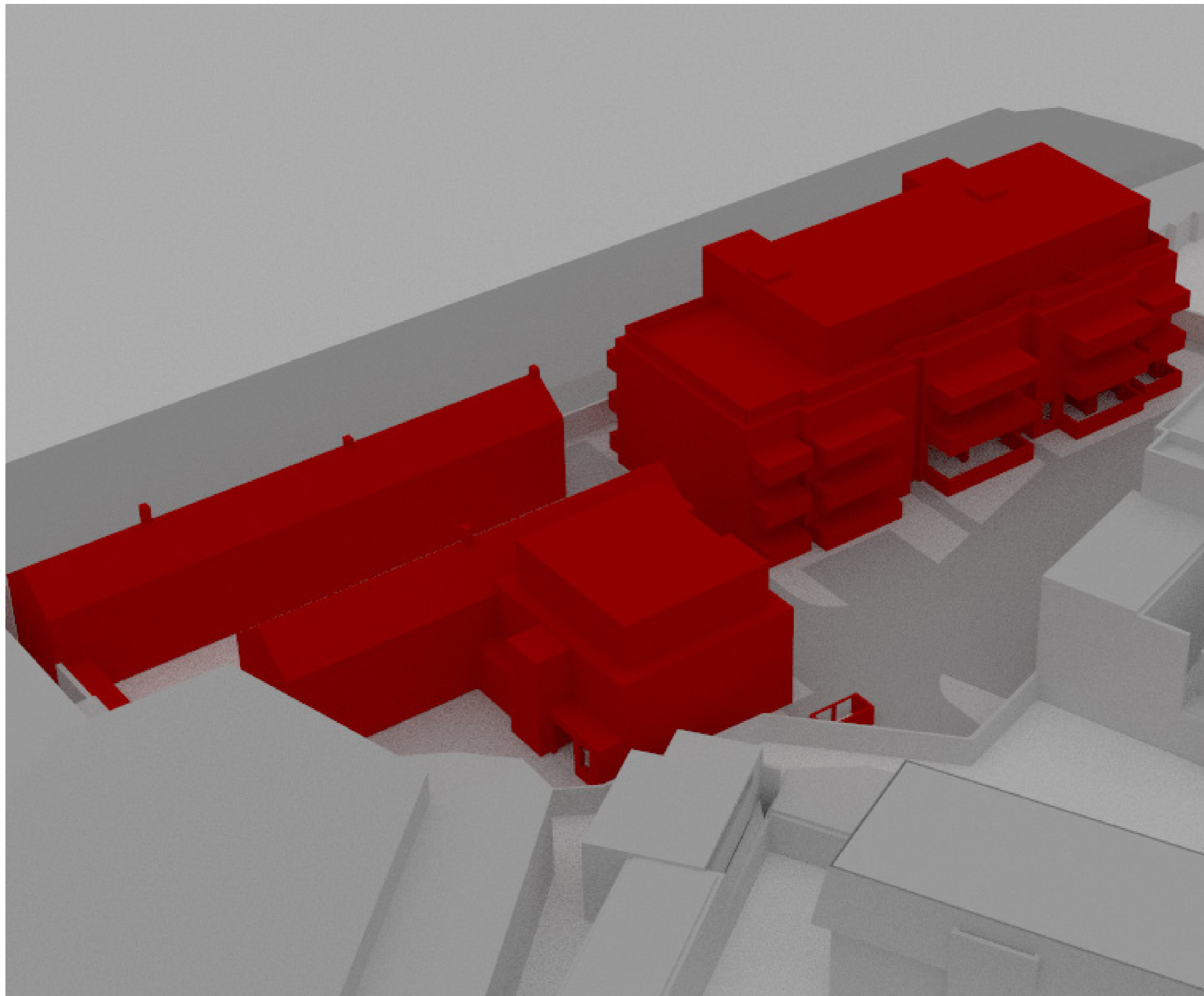
Appendix 1

Drawings of the proposed building and internal layout

Sources of information

Brookes Architects

4786_3_3D - DWG Export.dwg
4786_3_10_B - Site Plan - Ground Floor Proposed.pdf
4786_3_11_B - Floor Plans.pdf
4786_3_20_B - Elevations - Main Block.pdf
Received 25/10/2018



Project Arlington Works
Twickenham
TW1 2BB

Title 3D view of proposed
development

Drawn IT Checked --

Date 25/10/2018 Rel no. 01

Drawing no. 3420-ID01

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Project Arlington Works
Twickenham
TW1 2BB

Title Room and window layout
Ground floor

Drawn IT Checked --

Date 25/10/2018 Rel no. 01

Drawing no. 3420-ID02



Appendix 2

Results of the daylight and sunlight assessments
within the proposed dwellings

Floor	Room ID	Window ID	Room use	ADF	TOTAL ADF	TOTAL APSH	WINTER APSH
Ground	Unit 1 - R1	W1-L	Bedroom	0.4	2.2	26	5
		W1-U	Bedroom	1.8			
Ground	Unit 1 - R2	W2-L	Bedroom	0.6	2.6	23	6
		W2-U	Bedroom	2.1			
Ground	Unit 1 - R3	W3-L	Living Room	0.4	2.7	40	11
		W3-U	Living Room	1.4			
		W4	Living Room	1.0			
Ground	Unit 2 - R1	W5-L	Living Room	0.7	2.6	13	7
		W5-U	Living Room	2.0			
Ground	Unit 2 - R2	W6-L	Bedroom	0.7	4.7	N/A	N/A
		W6-U	Bedroom	4.0			
Ground	Unit 2 - R3	W7-L	Bedroom	0.2	1.7	N/A	N/A
		W7-U	Bedroom	1.5			
Ground	Unit 3 - R1	W8-L	Living Room	0.7	2.9	14	11
		W8-U	Living Room	2.2			
Ground	Unit 3 - R2	W9-L	Bedroom	0.2	1.7	N/A	N/A
		W9-U	Bedroom	1.5			
Ground	Unit 3 - R3	W10-L	Bedroom	0.7	4.7	N/A	N/A
		W10-U	Bedroom	4.0			
Ground	Unit 22 - R1	W11-L	Living Room	0.4	3.9	51	9
		W11-U	Living Room	2.4			
		W12	Living Room	1.0			
Ground	Unit 22 - R2	W13-L	Bedroom	0.8	5.5	N/A	N/A
		W13-U	Bedroom	4.7			
Ground	Unit 22 - R3	W14	Bedroom	2.5	2.5	N/A	N/A