6 Stukeley Street, WC2

Daylight and Sunlight Assessment

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Contents

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1.0 Introduction

1.1 T16 Design is engaged to produce this report, which is an analysis of the impact on the neighbouring properties, of the proposed redevelopment of 6 Stukeley Street, London WC2.

1.2 Specifically, this report looks at the impacts with regard to the change in daylight and sunlight received on the windows of the neighbouring dwellings and the internal daylight in the proposed new dwellings.

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. However, the BRE Report 'Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice' 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. It has been developed in conjunction with daylight and sunlight recommendations in BS 8206: Part 2: 'Lighting for Buildings - Code of Practice for Daylighting'

1.4 This reference document is accepted as the authoritative work in the field on 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.

1.5 This report has been prepared in support of a planning application, and not a Right to Light dispute. Although the methodology used is similar, this report has not been formulated for Right to Light usage, and must not be used as such.

2.0 Methodology

2.1 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) for daylight
- Annual Probable Sunlight Hours (APSH) for sunlight

2.2 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.

2.3 Annual Probable Sunlight Hours (APSH) is a measure of the amount of potential direct sunlight that is available to a given surface. Only windows which face within 90° of due south need be assessed for sunlight.

2.2 This report also looks at the internal daylight levels that the new units will recieve using:

- Average Daylight Factor (ADF)

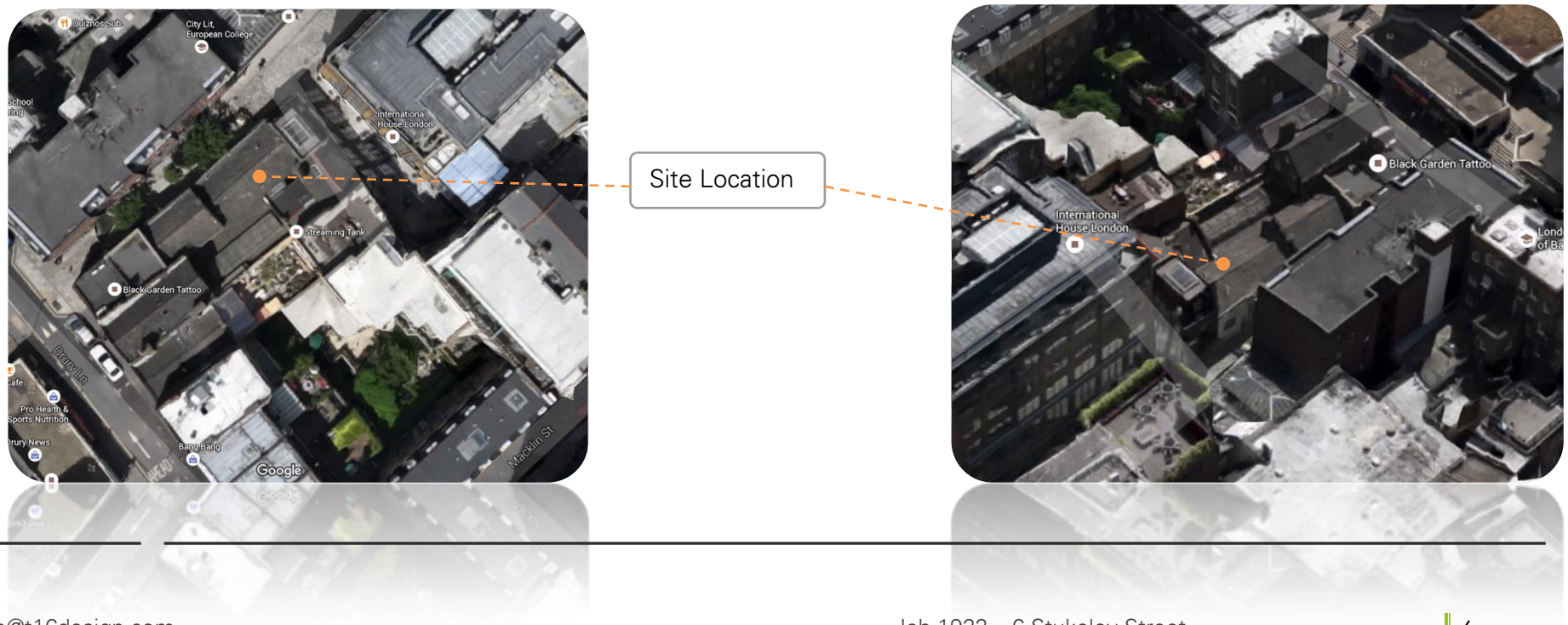
2.3 The ADF is derived from British Standard BS 8206 and is a complex and representative calculation to determine natural internal luminance (daylight). The ADF takes into account such factors as window size, number of windows available to the room, room size and layout, surface reflectance, and the angle of visible sky reaching the window.

3.0 Existing Site and Proposal

3.1 The existing site is currently a single storey dwelling which is to be demolished. There are existing dwellings to the East, North and West in quite close proximity and of varying heights.

3.2 The proposal is to develop the site to provide 2 residential units over 3 storeys plus basement, within the existing footprint.

3.3 The surrounding area is residential/commercial and urban in nature. The proximity of neighbours is shown in aerial photos below.



4.0 Modelling the Site

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 current situation, and compare easily with the proposal.

4.2 The 3D model that has been provided by the scheme Architect is exported into the specialist daylight analysis software, and calculations are then run, for both existing and proposed.

4.3 The outputs of those calculations can be exported numerically. Using the BRE guidance which gives absolute figures for the acceptable reduction in lighting value, we can then establish if the proposal will have a significant and measurable impact on the enjoyment of the occupiers of the adjacent dwellings.

4.4 Sufficient detail is added to the model for the analysis. It is important to note that not all nearby features have been modelled, only those that will affect the daylighting. In accordance with BRE recommendations, trees have been omitted from the calculations.

4.5 Drawn information on the properties has been provided to us by the design team in the form of 2D drawings of the site as existing and proposed. OS data and web-based mapping information have also been used. A survey of the surrounding areas has been provided in DWG format so that the position and size of the neighbouring windows can accurately determined.

5.0 Measurement Criteria

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 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:

5.3.1 "While this guide supersedes the 1971 Department of the Environment document 'Sunlight and Daylight' which is now withdrawn, the main aim is the same - to help to ensure good conditions in the local environment, considered broadly, with enough sunlight and daylight on or between buildings for good interior and exterior conditions. 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.

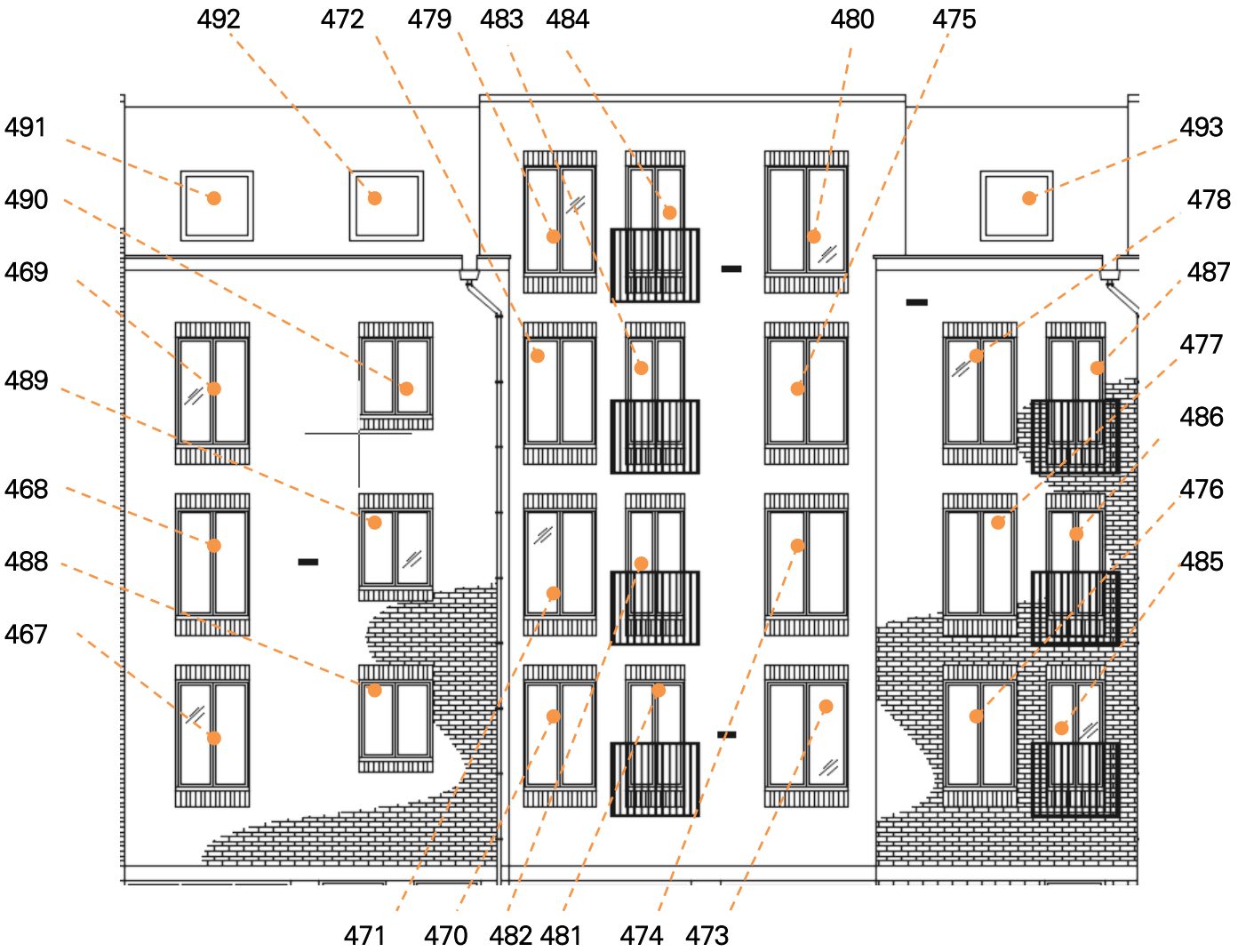
5.3.2 Although it gives numerical guidelines, these should be interpreted flexibly because natural lighting is only one of the many factors in site layout design."

5.4 The relevant BRE recommendations for daylight and sunlight are:

5.4.1 The Vertical Sky Component measured at the centre of a window should be no less than 80% of its former value

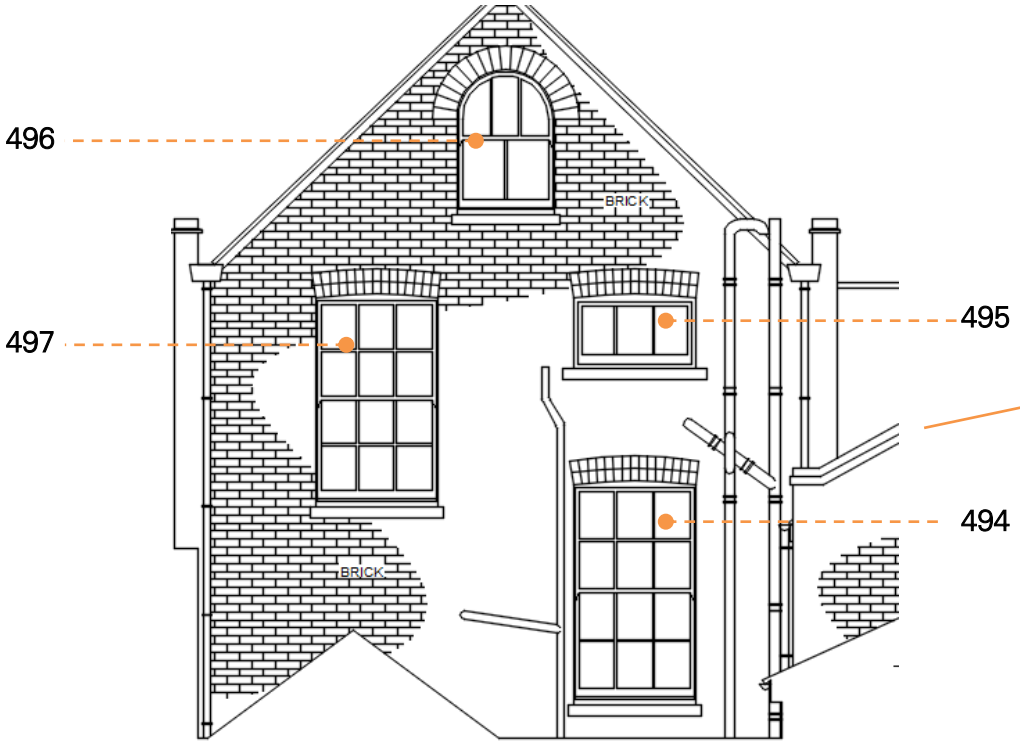
5.4.2 The window should receive at least 25% of available annual sunlight hours and more than 5% during the winter months (September 21st to March 21st), and at least 80% of its former value.

6.0 Window Schedules



1-7 Stukeley Street

6.0 Window Schedules



7.0 Daylight Results

7.1 The Vertical Sky Component has been calculated for each of the 33 assessed windows for both the existing and proposed conditions.

7.2 As can be seen in the results below, all of the assessed windows meet the 80% criteria for daylight.

Window	Vertical Sky Component		
	Existing	Proposed	% of Existing
467	26.86	25.525	95.03%
468	31.44	31.44	100.00%
469	34.229	34.229	100.00%
470	29.815	27.495	92.22%
471	34.27	34.27	100.00%
472	36.802	36.802	100.00%
473	30.153	28.024	92.94%
474	34.492	34.492	100.00%
475	37.156	37.156	100.00%
476	30.836	29.046	94.20%
477	34.942	34.942	100.00%
478	37.267	37.267	100.00%
479	37.639	37.639	100.00%
480	37.73	37.73	100.00%
481	30.102	27.953	92.86%
482	34.16	34.16	100.00%

Window	Vertical Sky Component		
	Existing	Proposed	% of Previous
484	37.64	37.64	100.00%
485	31.572	30.274	95.89%
486	34.91	34.91	100.00%
487	36.964	36.964	100.00%
488	29.904	27.96	93.50%
489	34.014	34.014	100.00%
490	36.637	36.637	100.00%
491	34.693	34.693	100.00%
492	37.691	37.691	100.00%
493	37.378	37.378	100.00%
494	19.728	18.184	92.17%
495	27.759	25.856	93.14%
496	32.555	32.444	99.66%
497	29.184	28.317	97.03%
512	28.134	28.047	99.69%
513	25.005	24.972	99.87%
514	24.194	24.061	99.45%

8.0 Sunlight Results

8.1 Annual Probable Sunlight hours is a measure of the number of hours of direct sun falling on a surface over a given period. This is of particular importance to living spaces where direct sunlight is welcomed.

8.2 BRE Guidance is that windows should continue to receive in excess of 80% of their pre-development value, 25% of available hours over the year, and 5% of hours in winter.

8.3 Only windows which face within 90° of due south need be assessed for sunlight. In this instance, 28 windows meet this criterion.

8.4 As can be seen from the results below, all 28 windows achieve the necessary requirement for sunlight.

8.0 Sunlight Results

Window	APSH - Whole Year			APSH - Winter Months		
	Existing %	Proposed %	% of Previous	Existing %	Proposed %	% of Previous
467	34.705	33.963	97.86%	9.56%	9.08%	95.02%
468	39.61	39.61	100.00%	13.42%	13.42%	100.00%
469	44.241	44.241	100.00%	17.08%	17.08%	100.00%
470	50.79	47.51	93.54%	17.42%	14.90%	85.55%
471	57.251	57.251	100.00%	22.52%	22.52%	100.00%
472	59.694	59.694	100.00%	24.11%	24.11%	100.00%
473	51.149	48.154	94.14%	17.33%	15.09%	87.07%
474	59.891	59.891	100.00%	23.38%	23.38%	100.00%
475	61.39	61.39	100.00%	25.11%	25.11%	100.00%
476	52.997	49.736	93.85%	17.93%	15.38%	85.75%
477	60.182	60.182	100.00%	23.46%	23.46%	100.00%
478	61.566	61.566	100.00%	25.28%	25.28%	100.00%
479	60.614	60.614	100.00%	25.80%	25.80%	100.00%
480	61.143	61.143	100.00%	26.22%	26.22%	100.00%

8.0 Sunlight Results

Window	APSH - Whole Year			APSH - Winter Months		
	Existing %	Proposed %	% of Previous	Existing %	Proposed %	% of Previous
481	53.85	49.041	97.86%	19.54%	15.88%	81.27%
482	58.67	58.67	100.00%	23.32%	23.32%	100.00%
483	61.699	61.699	100.00%	25.75%	25.75%	100.00%
484	61.091	61.091	93.54%	26.26%	26.26%	100.00%
485	54.292	50.796	100.00%	19.16%	16.40%	85.58%
486	60.184	60.184	100.00%	23.92%	23.92%	100.00%
487	62.045	62.045	94.14%	25.96%	25.96%	100.00%
488	48.688	46.459	100.00%	16.19%	14.50%	89.54%
489	54.204	54.204	100.00%	20.55%	20.55%	100.00%
490	58.824	58.824	93.85%	24.20%	24.20%	100.00%
491	45.958	45.958	100.00%	18.34%	18.34%	100.00%
492	59.348	59.348	100.00%	24.61%	24.61%	100.00%
493	59.657	59.657	100.00%	26.10%	26.10%	100.00%
514	43.502	43.501	100.00%	7.64%	7.64%	100.00%

9.0 Internal ADF Method - Proposed Units

9.1 Internal daylight levels have been calculated in accordance with BRE methodology, using a CIE overcast sky at an illuminance value of 8500 lux.

9.2 The calculations have assumed a white ceiling, cream walls and mid-grey carpet or wooden floor.

9.3 The British Standard recommended ADF values for particular room types are:

- Kitchens: 2%
- Living Rooms: 1.5%
- Dining Rooms: 1.5%
- Bedrooms: 1%
- Studies: 1.5%

9.4 It is worth noting that these figures assume that internal lighting is available to supplement the available daylight. It is considered that if a room has a Daylight Factor of **5%,** then it will be sufficiently well lit, even in the absence of electric lighting.

9.5 It is deemed by the guidance that if the ADF criteria are met, then the occupiers of the dwelling will have sufficient daylight. In any case, it can be seen from the results below that all assessed habitable rooms meet the recommended levels of internal daylight.

10.0 Internal ADF Results

Unit	Room	Recommended ADF	Actual ADF
1	Kitchen/Dining	2.0%	**3.21%**
1	Living	1.5%	**9.15%**
1	Bedroom 1	1.0%	**3.87%**
1	Bedroom 2	1.0%	**1.85%**
2	Kitchen/Dining	2.0%	**2.97%**
2	Living	1.5%	**9.03%**
2	Bedroom 1	1.0%	**3.54%**
2	Bedroom 2	1.0%	**1.56%**

11.0 Conclusions

11.1 Using industry standard methodology, we have made numerical analyses to ensure compliance with the recommended levels of change in daylight and sunlight for the windows of the neighbouring properties. The main criteria used in this analysis to show compliance are the Annual Probable Sunlight Hours and Vertical Sky Component tests.

11.2 As has been shown, the effects on daylight and sunlight are within the 80% guidance value in all cases.

11.3 The internal daylight levels for the proposed development are good, and above the recommendations of the British Standard.

11.4 From a planning perspective therefore, it is the conclusion of this report that the proposed development can be considered acceptable in planning terms and its effects on the neighbouring dwellings meets the requirements of the BRE guidance.

Appendix 1 - Author Credentials

- This report has been produced by Ollie Westover, Founding Director at T16 Design.
- Ollie has a BSc (Hons.) in Architecture and is a BRE licensed Environmental Consultant with over 10 years experience.
- Although there is no recognised accreditation procedure for daylight consultants, in his capacity as an environmental consultant and assessor, Ollie has amassed a wealth of daylight experience.
- Twenty16 Design have produced or are employed to produce over 100 daylight analyses to date, on schemes ranging from multi-use sites of £10m+ to small extensions.
- We also work as technical consultants to a range of Architects, Surveyors and Developers in the fields of Daylight and Right to Light
- Our clients include:

    - *Taylor Wimpey*
    - *Barratt Homes*
    - *Holden Harper Architects*
    - *David Maycox and Associates*
    - *Rundell Associates*
    - *Broadhaven Estates*
    - *St James/Berkeley Group*
    - *Indigo Developments*
    - *YMCA*