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Daylight and Sunlight Study (Within Development)
Twickenham Rediscovered Programme - Riverside, King Street, Twickenham TW1 3SD

23 November 2017

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CONTENTS

1 EXECUTIVE SUMMARY

1.1 Overview

1.1.1 Right of Light Consulting has been commissioned by London Borough of Richmond to undertake a daylight and sunlight study in connection with the development at Twickenham Rediscovered Riverside Programme TW1 3SD. The aim of the study is to check whether or not the proposed First, Second and Third Floors receive satisfactory levels of daylight and sunlight.

1.1.2 The study is based on the numerical tests laid down in the Building Research Establishment (BRE) guide 'Site Layout Planning for Daylight and Sunlight: a good practice guide' by P J Littlefair 2011.

1.1.3 Appendix 1 identifies the windows analysed in this study. The numerical test results (including all calculation workings) are provided in Appendix 2. No sky line contours are presented in Appendix 3.

1.1.4 Right of Light Consulting confirms that the proposed development design achieves a relatively high level of compliance against the BRE recommendations. In our opinion there is no daylight/sunlight related reason why planning permission should not be granted for this scheme.

2 INFORMATION SOURCES

2.1 Documents Considered

2.1.1 This report is based on the following drawings:

cjct Architecture

(20)_020	Proposed Site Plan	Rev D03
(20)_099	Proposed Lower Ground	Rev D06
(20)_100	Proposed Ground Floor Plan	Rev D06
(20)_101	Proposed First Floor Plan	Rev D06
(20)_102	Second Floor Plan	Rev D05
(20)_103	Proposed Third Floor Plan	Rev D05
(20)_104	Proposed Roof Plan	Rev D06
(20)_200	Proposed Elevations	Rev D06
(20)_201	Proposed Elevations	Rev D06
(20)_202	Proposed Elevations Building B	Rev D02
(20)_203	Proposed Elevations	Rev D02
(20)_204	Proposed Elevations	Rev D02

3 METHODOLOGY OF THE STUDY

3.1 BRE Guide : Site Layout Planning for Daylight and Sunlight

3.1.1 The study is based on the numerical tests laid down in the Building Research Establishment (BRE) guide 'Site Layout Planning for Daylight and Sunlight: a good practice guide' by P J Littlefair 2011.

3.1.2 The standards set out in the BRE guide are intended to be used flexibly. In instances where there is a special requirement for daylight or sunlight, higher levels may be deemed necessary. In other situations, such as with urban developments, lower daylight and sunlight levels may be unavoidable. The following statement is quoted directly from the BRE guide:

3.1.3 "The guide is intended for building designers and their clients, consultants and planning officials. The advice given is not mandatory and this document should not be considered as an instrument of planning policy. Its aim is to help rather than constrain the designer. Although it gives numerical guidelines, these should be interpreted flexibly because natural lighting is only one of the many factors in site layout design."

3.2 Interior Daylighting

3.2.1 The interior daylighting recommendations set out in BRE guide are based on British Standard BS 8206 Part 2 and the Chartered Institute of Building Services Engineers Applications Manual on window design. Collectively, the guides set out three main criteria for interior daylighting. These are summarised as follows:

3.2.2 Test 1 Average Daylight Factor *(df)*

The Average Daylight Factor can be calculated using the following formula:

$$df = \frac{T\ Aw\ \theta}{A\ (1-R^2)}\ \%$$

Where

T is the diffuse visible transmittance of the glazing (BRE standard of 0.68)
Aw is the net glazed area of the window (m^2)
A is the total area of the room surfaces (m^2)
R is their average reflectance
Θ is the angle of visible sky in degrees

The Average Daylight factor test is applied to habitable rooms within domestic properties. A kitchen is generally deemed to be a habitable room if it is large enough to accommodate a dining area. If the kitchen is small or if the property has a separate dining area then the accepted practice is to treat the kitchen as a non habitable room.

For the purpose of this study we have assumed BRE internal reflectance values pertaining to medium wooden floors, light painted walls and white painted ceilings.

The guide recommends an Average Daylight Factor of 5% or more if there is no supplementary electric lighting, or 2% or more if supplementary lighting is provided. There are additional minimum recommendations for dwellings of 2% for kitchens, 1.5% for living rooms and 1% for bedrooms.

A special procedure is required for floor to ceiling windows such as patio doors. If part of a window is below the height of the working plane (a horizontal plane 0.85m above the floor in housing), this portion should be treated as a separate window. The ADF for this window has an extra factor applied to it, to take account of the reduced effectiveness of low level glazing in lighting the room. A value equal to the floor reflectance may be taken for this factor. The ADF for the portion of the window above the working plane is calculated in the normal way without this additional factor, and the ADFs for the two portions are added together.

3.2.3 Test 2 Room Depth

If a daylit room is lit by windows in one wall only, the depth of the room L should not exceed the limiting value given by:

$$\frac{L}{W} + \frac{L}{H} \leq \frac{2}{1-R_b}$$

Where

W is the room width
H is the window-head height above floor level
R_b is the average reflectance of the surfaces in the rear half of the room

3.2.4 Test 3 Position of the no sky line

If a significant area of the working plane lies beyond the no sky line (i.e. it receives no direct skylight), then the distribution of daylight in the room will look poor and supplementary electric lighting will be required.

The no sky line assessment is not applicable where a room derives its daylight solely from a light well or atrium. In these situations the room relies on borrowed light instead of direct skylight.

3.3 Sunlight to Windows

3.3.1 The BRE guide recommends that where possible each dwelling should have at least one main living room window that faces within 90 degrees of due south. However, the guide acknowledges that this is not always possible when it comes to flats.

3.3.2 The BRE sunlight tests should be applied to all main living rooms and conservatories which have a window which faces within 90 degrees of due south. The guide states that sunlight is viewed as less important in kitchens and bedrooms. In non-domestic buildings, any spaces which are deemed to have a specific requirement for sunlight should be checked.

3.3.3 The BRE guide recommends that main living room windows should receive 25% of the total annual probable sunlight hours, including 5% of the annual probable sunlight hours during the winter months between 21st September and 21st March.

3.4 Overshadowing to Gardens and Open Spaces

3.4.1 The availability of sunlight should be checked for all open spaces where sunlight is required. This would normally include:

- Gardens, usually the main back garden of a house
- Parks and playing fields
- Children's playgrounds
- Outdoor swimming pools and paddling pools
- Sitting out areas, such as those between non-domestic buildings and in public squares
- Focal points for views such as a group of monuments or fountains.

3.4.2 The BRE guide recommends that for an open space to appear adequately lit throughout the year, at least 50% of its area should receive two hours of sunlight on 21st March.

4 RESULTS OF THE STUDY

4.1 Window Reference Points

4.1.1 Refer to Appendix 1 for a drawing which identifies the positions of the windows analysed in this study.

4.2 Numerical Results and No Sky Line Contours

4.2.1 The numerical test results including all calculation workings are provided in Appendix 2. No sky line contours for the habitable rooms are presented in Appendix 3.

4.3 Interior Daylighting

4.3.1 Approximately 85% of all habitable rooms achieve or surpass the minimum recommended Average Daylight Factor (ADF) targets (only 15 of the total 101 habitable rooms fall short of their ADF targets). This is a high level of compliance in the context of an urban development site.

4.3.2 All rooms pass the room depth test.

4.3.3 The BRE guide does not give fixed numerical pass/fail criteria for the No Sky Line test when applied to new dwellings (guidance is given for when this test is applied to existing neighbouring buildings). However, for completeness, we have illustrated the no sky line contours in Appendix 3.

4.4 Sunlight to Windows

4.4.1 The proposed development contains a mixture of south east, south west, north east and north west facing flats. Whilst the aim is usually to maximise the number of south facing living rooms (44% of living rooms have at least one south facing window), the BRE guide does not give mandatory sunlight requirements for new flats. The living rooms which face within 90 degrees of due south have been tested for direct sunlight. The results are presented in Appendix 2. Not all living room windows receive ideal levels of direct sunlight. However, the BRE guide acknowledges that for larger developments of flats, especially those with site constraints, it may not always be possible to have every living room well situated to receive direct sunlight.

4.5 Conclusion

4.5.1 Right of Light Consulting confirms that the proposed development design achieves a relatively high level of compliance against the BRE recommendations. In our opinion there is no daylight/sunlight related reason why planning permission should not be granted for this scheme.

5 CLARIFICATIONS

5.1 General

5.1.1 The report provided is solely for the use of the client and no liability to anyone else is accepted.

5.1.2 We have undertaken the survey following the guidelines of the RICS publication “Surveying Safely”.

5.1.3 Where limited access is available, assumptions will have been made.

5.1.4 Right of Light Consulting have endeavoured to include in the report those matters, which they have knowledge of or of which they have been made aware, that might adversely affect the validity of the opinion given.

5.1.5 Right of Light Consulting will notify those instructing them immediately and confirm in writing if for any reason the report requires any correction or qualification.

5.1.6 This report is based upon and subject to the scope of work set out in Right of Light Consulting’s quotation and standard terms and conditions.

5.1.7 Right of Light Consulting confirm that they have used their best endeavours to ensure that the facts stated in this report are correct and that the opinions expressed represent a true and complete professional opinion.

5.2 Project Specific

5.2.1 None

APPENDICES

APPENDIX 1

WINDOW KEY & NO SKY LINE CONTOURS

Proposed First Floor

Window Key and No Sky Line Contours

Key:

- Window reference
- Area receives no direct sky light (applied to habitable rooms)
- Area does receive direct sky light.
- Light aperture.

Project Name: Twickenham Rediscovered Riverside Programme TW1 3SD

Drawing Title: Window Key and No Sky Line Contours

Scale: Do not scale

Drawing No: 1 of 5 | Rev. -

Rev	Date	Details of revision

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Window Key and No Sky Line Contours

Key:

- Window reference
- Area receives no direct sky light (applied to habitable rooms)
- Area does receive direct sky light.
- Light aperture.

Project Name: Twickenham Rediscovered Riverside Programme TW1 3SD

Drawing Title: Window Key and No Sky Line Contours

Scale: Do not scale

Drawing No: 2 of 5 | Rev. -

Rev	Date	Details of revision

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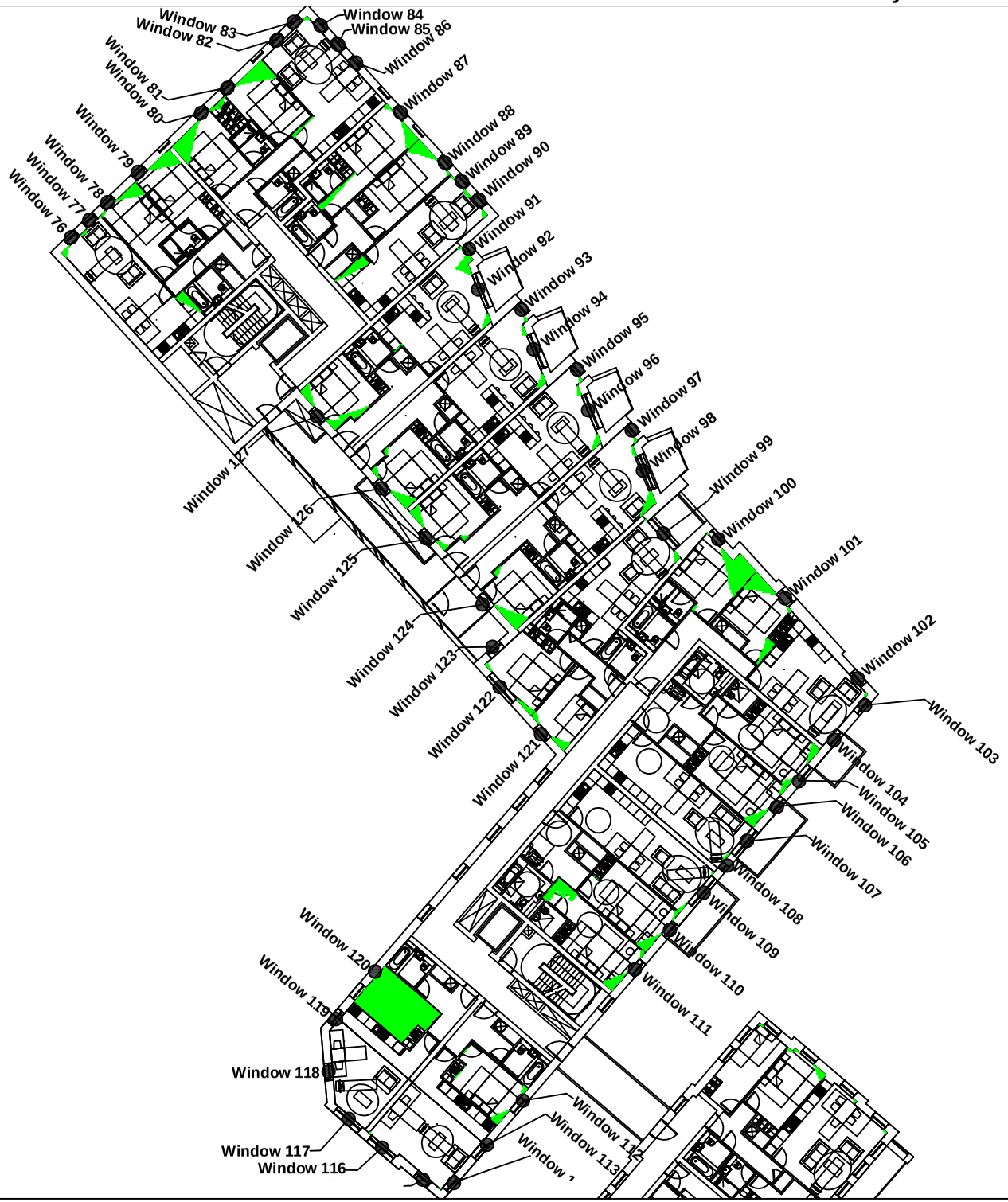
Proposed Second Floor

Window Key and No Sky Line Contours



Key:

- Window reference
- Area receives no direct sky light (applied to habitable rooms)
- Area does receive direct sky light.
- Light aperture.

Project Name: Twickenham Rediscovered Riverside Programme TW1 3SD

Drawing Title: Window Key and No Sky Line Contours

Scale: Do not scale

Drawing No: 3 of 5 | Rev. -

Rev	Date	Details of revision

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Proposed Second Floor

Window Key and No Sky Line Contours

Key:

- Window reference
- Area receives no direct sky light (applied to habitable rooms)
- Area does receive direct sky light.
- Light aperture.

Project Name: Twickenham Rediscovered Riverside Programme TW1 3SD

Drawing Title: Window Key and No Sky Line Contours

Scale: Do not scale

Drawing No: 4 of 5 | Rev. -

Rev	Date	Details of revision

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Proposed Third Floor

Window Key and No Sky Line Contours

Key:

- Window reference
- Area receives no direct sky light (applied to habitable rooms)
- Area does receive direct sky light.
- Light aperture.

Project Name: Twickenham Rediscovered Riverside Programme TW1 3SD

Drawing Title: Window Key and No Sky Line Contours

Scale: Do not scale

Drawing No: 5 of 5 | Rev. -

Rev	Date	Details of revision

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APPENDIX 2

DAYLIGHT AND SUNLIGHT CALCULATIONS

Appendix 2 - Average Daylight Factor (ADF)
Twickenham Riverside, King Street, Twickenham TW1 3SD

Reference	Target ADF based on room use		Average Daylight Factor Coefficients					Actual ADF	
	Primary room use	ADF	T	Aw	A	R	Theta	ADF	Result
Proposed First Floor									
Window 1 (lower)			0.68	0.31	120.55	0.7	76.3	0.1%	
Window 1 (upper)			0.68	0.91	120.55	0.7	77.6	0.8%	
Window 2 (lower)			0.68	0.31	120.55	0.7	76.5	0.1%	
Window 2 (upper)			0.68	0.91	120.55	0.7	77.8	0.8%	
Total ADF for room	Living / Dining / Kitchen	2.0%						**1.8%**	**Fail**
Window 3 (lower)			0.68	0.31	66.14	0.72	76.5	0.2%	
Window 3 (upper)			0.68	0.91	66.14	0.72	77.8	1.5%	
Total ADF for room	Bedroom	1.0%						**1.7%**	**Pass**
Window 4 (lower)			0.68	0.31	66.46	0.72	76.6	0.2%	
Window 4 (upper)			0.68	0.91	66.46	0.72	77.9	1.5%	
Total ADF for room	Bedroom	1.0%						**1.7%**	**Pass**
Window 5 (lower)			0.68	0.31	61.87	0.72	76.4	0.2%	
Window 5 (upper)			0.68	0.91	61.87	0.72	77.7	1.6%	
Total ADF for room	Bedroom	1.0%						**1.8%**	**Pass**
Window 6 (lower)			0.68	0.31	62.67	0.72	76.2	0.2%	
Window 6 (upper)			0.68	0.91	62.67	0.72	77.5	1.6%	
Total ADF for room	Bedroom	1.0%						**1.8%**	**Pass**
Window 7 (lower)			0.68	0.31	118.41	0.68	75.7	0.1%	
Window 7 (upper)			0.68	0.91	118.41	0.68	77.0	0.7%	
Window 8 (lower)			0.68	0.31	118.41	0.68	75.5	0.1%	
Window 8 (upper)			0.68	0.91	118.41	0.68	76.8	0.7%	
Window 9 (lower)			0.68	0.31	118.41	0.68	73.0	0.1%	
Window 9 (upper)			0.68	0.91	118.41	0.68	75.4	0.7%	
Window 10 (lower)			0.68	0.31	118.41	0.68	73.2	0.1%	
Window 10 (upper)			0.68	0.91	118.41	0.68	75.6	0.7%	
Window 11 (lower)			0.68	0.31	118.41	0.68	73.4	0.1%	
Window 11 (upper)			0.68	0.91	118.41	0.68	75.8	0.7%	
Total ADF for room	Living / Dining / Kitchen	2.0%						**4.0%**	**Pass**
Window 12 (lower)			0.68	0.3	79.89	0.72	74.3	0.2%	
Window 12 (upper)			0.68	0.91	79.89	0.72	76.7	1.2%	
Total ADF for room	Bedroom	1.0%						**1.4%**	**Pass**

Appendix 2 - Average Daylight Factor (ADF)
Twickenham Riverside, King Street, Twickenham TW1 3SD

Reference	Target ADF based on room use		Average Daylight Factor Coefficients					Actual ADF	
	Primary room use	ADF	T	Aw	A	R	Theta	ADF	Result
Window 13 (lower)			0.68	0.31	72.63	0.72	75.2	0.2%	
Window 13 (upper)			0.68	0.91	72.63	0.72	77.6	1.4%	
Total ADF for room	Bedroom	1.0%						**1.6%**	**Pass**
Window 14 (lower)			0.68	0.31	126.38	0.7	75.6	0.1%	
Window 14 (upper)			0.68	0.91	126.38	0.7	78.0	0.8%	
Window 15 (lower)			0.68	0.31	126.38	0.7	75.9	0.1%	
Window 15 (upper)			0.68	0.91	126.38	0.7	78.3	0.8%	
Total ADF for room	Living / Dining / Kitchen	2.0%						**1.8%**	**Fail**
Window 17 (lower)			0.68	1.5	112.03	0.68	42.6	0.3%	
Window 17 (upper)			0.68	2.38	112.03	0.68	30.8	0.8%	
Window 16 (lower)			0.68	0.27	112.03	0.68	41.2	0.1%	
Window 16 (upper)			0.68	0.43	112.03	0.68	42.4	0.2%	
Total ADF for room	Living / Dining / Kitchen	2.0%						**1.4%**	**Fail**
Window 19 (lower)			0.68	1.5	112.05	0.68	42.5	0.3%	
Window 19 (upper)			0.68	2.38	112.05	0.68	30.8	0.8%	
Window 18 (lower)			0.68	0.39	112.05	0.68	63.8	0.1%	
Window 18 (upper)			0.68	0.75	112.05	0.68	65.2	0.6%	
Total ADF for room	Living / Dining / Kitchen	2.0%						**1.8%**	**Fail**
Window 21 (lower)			0.68	1.5	112.03	0.68	42.6	0.3%	
Window 21 (upper)			0.68	2.38	112.03	0.68	30.7	0.8%	
Window 20 (lower)			0.68	0.39	112.03	0.68	64.2	0.1%	
Window 20 (upper)			0.68	0.75	112.03	0.68	65.4	0.6%	
Total ADF for room	Living / Dining / Kitchen	2.0%						**1.8%**	**Fail**
Window 23 (lower)			0.68	1.5	112.05	0.68	42.8	0.3%	
Window 23 (upper)			0.68	2.38	112.05	0.68	31.0	0.8%	
Window 22 (lower)			0.68	0.39	112.05	0.68	64.5	0.1%	
Window 22 (upper)			0.68	0.75	112.05	0.68	65.8	0.6%	
Total ADF for room	Living / Dining / Kitchen	2.0%						**1.8%**	**Fail**
Window 24 (lower)			0.68	1.57	106.96	0.69	37.0	0.3%	
Window 24 (upper)			0.68	2.75	106.96	0.69	29.5	1.0%	
Total ADF for room	Living / Dining / Kitchen	2.0%						**1.3%**	**Fail**

Appendix 2 - Average Daylight Factor (ADF)
Twickenham Riverside, King Street, Twickenham TW1 3SD

Reference	Target ADF based on room use		Average Daylight Factor Coefficients					Actual ADF	
	Primary room use	ADF	T	Aw	A	R	Theta	ADF	Result
Window 25 (lower)			0.68	0.67	68.61	0.71	71.7	0.4%	
Window 25 (upper)			0.68	1.09	68.61	0.71	74.0	1.6%	
Total ADF for room	Bedroom	1.0%						**2.0%**	**Pass**
Window 26 (lower)			0.68	0.7	60.89	0.71	79.9	0.5%	
Window 26 (upper)			0.68	1.11	60.89	0.71	82.4	2.1%	
Total ADF for room	Bedroom	1.0%						**2.6%**	**Pass**
Window 27 (lower)			0.68	0.7	106.55	0.68	80.7	0.3%	
Window 27 (upper)			0.68	1.11	106.55	0.68	83.0	1.1%	
Window 28 (lower)			0.68	0.7	106.55	0.68	72.5	0.2%	
Window 28 (upper)			0.68	1.11	106.55	0.68	59.6	0.8%	
Window 29 (lower)			0.68	0.7	106.55	0.68	69.7	0.2%	
Window 29 (upper)			0.68	1.11	106.55	0.68	54.8	0.7%	
Total ADF for room	Living / Dining / Kitchen	2.0%						**3.3%**	**Pass**
Window 30 (lower)			0.68	0.7	81.63	0.71	76.5	0.4%	
Window 30 (upper)			0.68	1.11	81.63	0.71	76.4	1.4%	
Total ADF for room	Bedroom	1.0%						**1.8%**	**Pass**
Window 31 (lower)			0.68	0.7	73.66	0.71	70.0	0.4%	
Window 31 (upper)			0.68	1.11	73.66	0.71	59.8	1.2%	
Total ADF for room	Bedroom	1.0%						**1.6%**	**Pass**
Window 33 (lower)			0.68	0.31	124.44	0.69	65.6	0.1%	
Window 33 (upper)			0.68	0.49	124.44	0.69	61.9	0.3%	
Window 32 (lower)			0.68	1.34	124.44	0.69	64.9	0.4%	
Window 32 (upper)			0.68	2.12	124.44	0.69	51.4	1.1%	
Total ADF for room	Living / Dining / Kitchen	2.0%						**1.9%**	**Fail**
Window 34 (lower)			0.68	1.46	124.3	0.69	60.9	0.4%	
Window 34 (upper)			0.68	2.32	124.3	0.69	48.5	1.2%	
Total ADF for room	Living / Dining / Kitchen	2.0%						**1.6%**	**Fail**
Window 35 (lower)			0.68	0.7	73.58	0.71	59.1	0.3%	
Window 35 (upper)			0.68	1.11	73.58	0.71	50.0	1.0%	
Total ADF for room	Bedroom	1.0%						**1.3%**	**Pass**
Window 36 (lower)			0.68	0.7	81.55	0.71	59.2	0.3%	
Window 36 (upper)			0.68	1.11	81.55	0.71	63.4	1.2%	

Appendix 2 - Average Daylight Factor (ADF)
Twickenham Riverside, King Street, Twickenham TW1 3SD

Reference	Target ADF based on room use		Average Daylight Factor Coefficients					Actual ADF	
	Primary room use	ADF	T	Aw	A	R	Theta	ADF	Result
Total ADF for room	Bedroom	1.0%						**1.5%**	**Pass**
Window 37 (lower)			0.68	0.7	57.6	0.71	39.7	0.3%	
Window 37 (upper)			0.68	1.11	57.6	0.71	36.7	1.0%	
Total ADF for room	Bedroom	1.0%						**1.3%**	**Pass**
Window 38 (lower)			0.68	0.7	124.88	0.67	54.8	0.2%	
Window 38 (upper)			0.68	1.11	124.88	0.67	59.2	0.6%	
Window 39 (lower)			0.68	0.7	124.88	0.67	57.9	0.2%	
Window 39 (upper)			0.68	1.11	124.88	0.67	61.7	0.7%	
Window 40 (lower)			0.68	0.7	124.88	0.67	84.7	0.2%	
Window 40 (upper)			0.68	1.11	124.88	0.67	84.5	0.9%	
Window 41 (lower)			0.68	1.29	124.88	0.67	84.3	0.4%	
Window 41 (upper)			0.68	2.05	124.88	0.67	79.9	1.6%	
Total ADF for room	Living / Dining / Kitchen	2.0%						**4.8%**	**Pass**
Window 42 (lower)			0.68	1.46	112.08	0.67	84.1	0.5%	
Window 42 (upper)			0.68	2.32	112.08	0.67	79.6	2.1%	
Window 43 (lower)			0.68	0.7	112.08	0.67	72.6	0.2%	
Window 43 (upper)			0.68	1.11	112.08	0.67	74.0	0.9%	
Window 44 (lower)			0.68	0.69	112.08	0.67	61.8	0.2%	
Window 44 (upper)			0.68	1.12	112.08	0.67	64.9	0.8%	
Total ADF for room	Living / Dining / Kitchen	2.0%						**4.7%**	**Pass**
Window 45 (lower)			0.68	0.7	57.66	0.5	64.2	0.0%	
Window 45 (upper)			0.68	1.11	57.66	0.5	67.0	1.0%	
Total ADF for room	Bedroom	1.0%						**1.0%**	**Pass**
Window 46 (lower)			0.68	0.69	55.42	0.71	55.5	0.4%	
Window 46 (upper)			0.68	1.12	55.42	0.71	57.8	1.6%	
Total ADF for room	Bedroom	1.0%						**2.0%**	**Pass**
Window 47 (lower)			0.68	1.44	65.76	0.67	65.7	0.7%	
Window 47 (upper)			0.68	2.35	65.76	0.67	68.9	3.0%	
Window 48 (lower)			0.68	0.69	65.76	0.67	31.7	0.2%	
Window 48 (upper)			0.68	1.12	65.76	0.67	24.7	0.5%	
Total ADF for room	Bedroom	1.0%						**4.4%**	**Pass**
Window 49 (lower)			0.68	0.7	56.8	0.71	43.3	0.3%	

Appendix 2 - Average Daylight Factor (ADF)
Twickenham Riverside, King Street, Twickenham TW1 3SD

Reference	Target ADF based on room use		Average Daylight Factor Coefficients					Actual ADF	
	Primary room use	ADF	T	Aw	A	R	Theta	ADF	Result
Window 49 (upper)			0.68	1.11	56.8	0.71	30.5	0.8%	
Total ADF for room	Bedroom	1.0%						**1.1%**	**Pass**
Window 50 (lower)			0.68	0.7	56.8	0.71	45.7	0.3%	
Window 50 (upper)			0.68	1.11	56.8	0.71	34.6	0.9%	
Total ADF for room	Bedroom	1.0%						**1.2%**	**Pass**
Window 51 (lower)			0.68	0.7	56.8	0.71	44.8	0.3%	
Window 51 (upper)			0.68	1.11	56.8	0.71	34.2	0.9%	
Total ADF for room	Bedroom	1.0%						**1.2%**	**Pass**
Window 52 (lower)			0.68	0.69	56.8	0.71	37.9	0.2%	
Window 52 (upper)			0.68	1.12	56.8	0.71	29.3	0.8%	
Total ADF for room	Bedroom	1.0%						**1.0%**	**Pass**
Window 53 (lower)			0.68	0.71	59.84	0.67	50.4	0.3%	
Window 53 (upper)			0.68	1.05	59.84	0.67	56.5	1.2%	
Window 54 (lower)			0.68	0.71	59.84	0.67	50.4	0.3%	
Window 54 (upper)			0.68	1.05	59.84	0.67	56.1	1.2%	
Window 55 (lower)			0.68	0.71	59.84	0.67	75.9	0.5%	
Window 55 (upper)			0.68	1.05	59.84	0.67	77.9	1.7%	
Total ADF for room	Bedroom	1.0%						**5.2%**	**Pass**
Window 56 (lower)			0.68	0.71	59.53	0.71	79.8	0.5%	
Window 56 (upper)			0.68	1.05	59.53	0.71	81.3	2.0%	
Total ADF for room	Bedroom	1.0%						**2.5%**	**Pass**
Window 57 (lower)			0.68	0.71	110.82	0.66	82.1	0.3%	
Window 57 (upper)			0.68	1.05	110.82	0.66	83.3	0.9%	
Window 58 (lower)			0.68	0.71	110.82	0.66	82.9	0.3%	
Window 58 (upper)			0.68	1.05	110.82	0.66	83.9	0.9%	
Window 59 (lower)			0.68	0.71	110.82	0.66	64.2	0.2%	
Window 59 (upper)			0.68	1.05	110.82	0.66	54.8	0.6%	
Window 60 (lower)			0.68	0.71	110.82	0.66	66.6	0.2%	
Window 60 (upper)			0.68	1.05	110.82	0.66	55.5	0.6%	
Window 61 (lower)			0.68	0.71	110.82	0.66	59.1	0.2%	
Window 61 (upper)			0.68	1.05	110.82	0.66	50.0	0.6%	
Total ADF for room	Living / Dining / Kitchen	2.0%						**4.8%**	**Pass**

Appendix 2 - Average Daylight Factor (ADF)
Twickenham Riverside, King Street, Twickenham TW1 3SD

Reference	Target ADF based on room use		Average Daylight Factor Coefficients					Actual ADF	
	Primary room use	ADF	T	Aw	A	R	Theta	ADF	Result
Window 62 (lower)			0.68	0.71	73.16	0.72	89.1	0.5%	
Window 62 (upper)			0.68	1.05	73.16	0.72	88.9	1.8%	
Total ADF for room	Bedroom	1.0%						**2.3%**	**Pass**
Window 63 (lower)			0.68	0.71	72.71	0.71	89.1	0.5%	
Window 63 (upper)			0.68	1.05	72.71	0.71	88.9	1.8%	
Total ADF for room	Bedroom	1.0%						**2.3%**	**Pass**
Window 64 (lower)			0.68	0.71	102.5	0.7	61.1	0.2%	
Window 64 (upper)			0.68	1.05	102.5	0.7	51.6	0.7%	
Window 65 (lower)			0.68	0.71	102.5	0.7	66.2	0.2%	
Window 65 (upper)			0.68	1.05	102.5	0.7	55.3	0.8%	
Total ADF for room	Living / Dining / Kitchen	2.0%						**1.9%**	**Fail**
Window 67 (lower)			0.68	0.67	59.42	0.69	27.0	0.2%	
Window 67 (upper)			0.68	0.99	59.42	0.69	16.1	0.3%	
Window 66 (lower)			0.68	0.71	59.42	0.69	60.3	0.4%	
Window 66 (upper)			0.68	1.05	59.42	0.69	51.0	1.2%	
Total ADF for room	Bedroom	1.0%						**2.1%**	**Pass**
Window 68 (lower)			0.68	0.71	112.11	0.67	37.8	0.1%	
Window 68 (upper)			0.68	1.05	112.11	0.67	22.7	0.3%	
Window 69 (lower)			0.68	0.71	112.11	0.67	38.9	0.1%	
Window 69 (upper)			0.68	1.05	112.11	0.67	23.7	0.3%	
Window 70 (lower)			0.68	0.71	112.11	0.67	87.9	0.3%	
Window 70 (upper)			0.68	1.05	112.11	0.67	87.8	1.0%	
Window 71 (lower)			0.68	0.71	112.11	0.67	87.8	0.3%	
Window 71 (upper)			0.68	1.05	112.11	0.67	87.8	1.0%	
Total ADF for room	Living / Dining / Kitchen	2.0%						**3.4%**	**Pass**
Window 72 (lower)			0.68	0.71	58.29	0.65	86.1	0.5%	
Window 72 (upper)			0.68	1.05	58.29	0.65	86.2	1.8%	
Window 73 (lower)			0.68	0.71	58.29	0.65	87.5	0.5%	
Window 73 (upper)			0.68	1.05	58.29	0.65	87.6	1.8%	
Window 74 (lower)			0.68	0.71	58.29	0.65	65.6	0.4%	
Window 74 (upper)			0.68	1.05	58.29	0.65	69.0	1.5%	
Window 75 (lower)			0.68	0.71	58.29	0.65	62.9	0.4%	

Appendix 2 - Average Daylight Factor (ADF)
Twickenham Riverside, King Street, Twickenham TW1 3SD

Reference	Target ADF based on room use		Average Daylight Factor Coefficients					Actual ADF	
	Primary room use	ADF	T	Aw	A	R	Theta	ADF	Result
Window 75 (upper)			0.68	1.05	58.29	0.65	66.5	1.4%	
Total ADF for room	Bedroom	1.0%						**8.3%**	**Pass**
Proposed Second Floor									
Window 76 (lower)			0.68	0.31	120.55	0.7	81.1	0.1%	
Window 76 (upper)			0.68	0.87	120.55	0.7	82.3	0.8%	
Window 77 (lower)			0.68	0.31	120.55	0.7	81.2	0.1%	
Window 77 (upper)			0.68	0.87	120.55	0.7	82.4	0.8%	
Total ADF for room	Living / Dining / Kitchen	2.0%						**1.8%**	**Fail**
Window 78 (lower)			0.68	0.31	66.14	0.72	81.3	0.2%	
Window 78 (upper)			0.68	0.87	66.14	0.72	82.5	1.5%	
Total ADF for room	Bedroom	1.0%						**1.7%**	**Pass**
Window 79 (lower)			0.68	0.31	66.46	0.72	81.3	0.2%	
Window 79 (upper)			0.68	0.87	66.46	0.72	82.4	1.5%	
Total ADF for room	Bedroom	1.0%						**1.7%**	**Pass**
Window 80 (lower)			0.68	0.31	67.38	0.72	81.0	0.2%	
Window 80 (upper)			0.68	0.87	67.38	0.72	82.2	1.5%	
Total ADF for room	Bedroom	1.0%						**1.7%**	**Pass**
Window 81 (lower)			0.68	0.31	68.12	0.72	80.9	0.2%	
Window 81 (upper)			0.68	0.87	68.12	0.72	82.1	1.5%	
Total ADF for room	Bedroom	1.0%						**1.7%**	**Pass**
Window 82 (lower)			0.68	0.31	118.41	0.68	80.5	0.1%	
Window 82 (upper)			0.68	0.87	118.41	0.68	81.7	0.8%	
Window 83 (lower)			0.68	0.31	118.41	0.68	80.3	0.1%	
Window 83 (upper)			0.68	0.87	118.41	0.68	81.6	0.8%	
Window 84 (lower)			0.68	0.31	118.41	0.68	81.5	0.1%	
Window 84 (upper)			0.68	0.8	118.41	0.68	83.5	0.7%	
Window 85 (lower)			0.68	0.31	118.41	0.68	81.7	0.1%	
Window 85 (upper)			0.68	0.8	118.41	0.68	83.7	0.7%	
Window 86 (lower)			0.68	0.31	118.41	0.68	81.9	0.1%	
Window 86 (upper)			0.68	0.8	118.41	0.68	83.9	0.7%	
Total ADF for room	Living / Dining / Kitchen	2.0%						**4.2%**	**Pass**

Appendix 2 - Average Daylight Factor (ADF)
Twickenham Riverside, King Street, Twickenham TW1 3SD

Reference	Target ADF based on room use		Average Daylight Factor Coefficients					Actual ADF	
	Primary room use	ADF	T	Aw	A	R	Theta	ADF	Result
Window 87 (lower)			0.68	0.31	79.89	0.72	82.8	0.2%	
Window 87 (upper)			0.68	0.8	79.89	0.72	84.7	1.2%	
Total ADF for room	Bedroom	1.0%						**1.4%**	**Pass**
Window 88 (lower)			0.68	0.31	72.63	0.72	83.6	0.2%	
Window 88 (upper)			0.68	0.8	72.63	0.72	85.3	1.3%	
Total ADF for room	Bedroom	1.0%						**1.5%**	**Pass**
Window 89 (lower)			0.68	0.31	126.38	0.7	83.9	0.1%	
Window 89 (upper)			0.68	0.8	126.38	0.7	85.6	0.7%	
Window 90 (lower)			0.68	0.31	126.38	0.7	84.2	0.1%	
Window 90 (upper)			0.68	0.8	126.38	0.7	85.8	0.7%	
Total ADF for room	Living / Dining / Kitchen	2.0%						**1.6%**	**Fail**
Window 92 (lower)			0.68	1.5	112.03	0.68	46.4	0.3%	
Window 92 (upper)			0.68	2.38	112.03	0.68	34.5	0.9%	
Window 91 (lower)			0.68	0.21	112.03	0.68	44.9	0.0%	
Window 91 (upper)			0.68	0.49	112.03	0.68	47.2	0.3%	
Total ADF for room	Living / Dining / Kitchen	2.0%						**1.5%**	**Fail**
Window 94 (lower)			0.68	1.5	112.03	0.68	46.4	0.3%	
Window 94 (upper)			0.68	2.38	112.03	0.68	34.6	0.9%	
Window 93 (lower)			0.68	0.25	112.03	0.68	70.3	0.1%	
Window 93 (upper)			0.68	0.89	112.03	0.68	72.3	0.7%	
Total ADF for room	Living / Dining / Kitchen	2.0%						**2.0%**	**Pass**
Window 96 (lower)			0.68	1.5	112.03	0.68	46.4	0.3%	
Window 96 (upper)			0.68	2.38	112.03	0.68	34.6	0.9%	
Window 95 (lower)			0.68	0.25	112.03	0.68	70.7	0.1%	
Window 95 (upper)			0.68	0.89	112.03	0.68	72.7	0.7%	
Total ADF for room	Living / Dining / Kitchen	2.0%						**2.0%**	**Pass**
Window 98 (lower)			0.68	1.5	112.03	0.68	46.5	0.3%	
Window 98 (upper)			0.68	2.38	112.03	0.68	34.7	0.9%	
Window 97 (lower)			0.68	0.25	112.03	0.68	71.0	0.1%	
Window 97 (upper)			0.68	0.89	112.03	0.68	72.9	0.7%	
Total ADF for room	Living / Dining / Kitchen	2.0%						**2.0%**	**Pass**
Window 99 (lower)			0.68	1.15	106.96	0.69	49.7	0.3%	

Appendix 2 - Average Daylight Factor (ADF)
Twickenham Riverside, King Street, Twickenham TW1 3SD

Reference	Target ADF based on room use		Average Daylight Factor Coefficients					Actual ADF	
	Primary room use	ADF	T	Aw	A	R	Theta	ADF	Result
Window 99 (upper)			0.68	3.18	106.96	0.69	54.4	2.1%	
Total ADF for room	Living / Dining / Kitchen	2.0%						**2.4%**	**Pass**
Window 100 (lower)			0.68	0.68	68.61	0.71	77.7	0.4%	
Window 100 (upper)			0.68	1.08	68.61	0.71	78.8	1.7%	
Total ADF for room	Bedroom	1.0%						**2.1%**	**Pass**
Window 101 (lower)			0.68	0.7	60.89	0.71	76.9	0.5%	
Window 101 (upper)			0.68	1.11	60.89	0.71	74.1	1.9%	
Total ADF for room	Bedroom	1.0%						**2.4%**	**Pass**
Window 102 (lower)			0.68	0.7	106.55	0.68	85.6	0.3%	
Window 102 (upper)			0.68	1.11	106.55	0.68	80.2	1.0%	
Window 103 (lower)			0.68	0.7	106.55	0.68	85.9	0.3%	
Window 103 (upper)			0.68	1.11	106.55	0.68	79.8	1.0%	
Window 104 (lower)			0.68	0.7	106.55	0.68	85.3	0.3%	
Window 104 (upper)			0.68	1.11	106.55	0.68	79.5	1.0%	
Total ADF for room	Living / Dining / Kitchen	2.0%						**3.9%**	**Pass**
Window 105 (lower)			0.68	0.7	81.63	0.71	84.6	0.4%	
Window 105 (upper)			0.68	1.11	81.63	0.71	79.0	1.5%	
Total ADF for room	Bedroom	1.0%						**1.9%**	**Pass**
Window 106 (lower)			0.68	0.69	73.66	0.71	83.6	0.4%	
Window 106 (upper)			0.68	1.1	73.66	0.71	78.4	1.6%	
Total ADF for room	Bedroom	1.0%						**2.0%**	**Pass**
Window 108 (lower)			0.68	0.31	124.44	0.69	79.6	0.1%	
Window 108 (upper)			0.68	0.49	124.44	0.69	76.0	0.4%	
Window 107 (lower)			0.68	1.34	124.44	0.69	82.1	0.5%	
Window 107 (upper)			0.68	2.12	124.44	0.69	77.4	1.7%	
Total ADF for room	Living / Dining / Kitchen	2.0%						**2.7%**	**Pass**
Window 109 (lower)			0.68	1.46	124.3	0.69	79.2	0.5%	
Window 109 (upper)			0.68	2.32	124.3	0.69	75.5	1.8%	
Total ADF for room	Living / Dining / Kitchen	2.0%						**2.3%**	**Pass**
Window 110 (lower)			0.68	0.7	73.58	0.71	76.1	0.4%	
Window 110 (upper)			0.68	1.11	73.58	0.71	73.5	1.5%	

Appendix 2 - Average Daylight Factor (ADF)
Twickenham Riverside, King Street, Twickenham TW1 3SD

Reference	Target ADF based on room use		Average Daylight Factor Coefficients					Actual ADF	
	Primary room use	ADF	T	Aw	A	R	Theta	ADF	Result
Total ADF for room	Bedroom	1.0%						**1.9%**	**Pass**
Window 111 (lower)			0.68	0.7	81.55	0.71	71.4	0.3%	
Window 111 (upper)			0.68	1.11	81.55	0.71	70.6	1.3%	
Total ADF for room	Bedroom	1.0%						**1.6%**	**Pass**
Window 112 (lower)			0.68	0.7	57.69	0.71	52.2	0.3%	
Window 112 (upper)			0.68	1.11	57.69	0.71	46.0	1.2%	
Total ADF for room	Bedroom	1.0%						**1.5%**	**Pass**
Window 113 (lower)			0.68	0.7	124.88	0.67	67.0	0.2%	
Window 113 (upper)			0.68	1.11	124.88	0.67	67.4	0.7%	
Window 114 (lower)			0.68	0.7	124.88	0.67	68.8	0.2%	
Window 114 (upper)			0.68	1.11	124.88	0.67	68.9	0.7%	
Window 115 (lower)			0.68	0.7	124.88	0.67	85.3	0.2%	
Window 115 (upper)			0.68	1.11	124.88	0.67	79.4	0.9%	
Window 116 (lower)			0.68	1.29	124.88	0.67	87.5	0.4%	
Window 116 (upper)			0.68	2.05	124.88	0.67	86.9	1.8%	
Total ADF for room	Living / Dining / Kitchen	2.0%						**5.1%**	**Pass**
Window 117 (lower)			0.68	1.29	112.08	0.68	87.4	0.5%	
Window 117 (upper)			0.68	2.05	112.08	0.68	86.8	2.0%	
Window 118 (lower)			0.68	0.7	112.08	0.68	75.2	0.2%	
Window 118 (upper)			0.68	1.11	112.08	0.68	66.9	0.8%	
Window 119 (lower)			0.68	0.7	112.08	0.68	69.4	0.2%	
Window 119 (upper)			0.68	1.11	112.08	0.68	67.6	0.8%	
Total ADF for room	Living / Dining / Kitchen	2.0%						**4.5%**	**Pass**
Window 120 (lower)			0.68	0.7	57.66	0.5	71.1	0.0%	
Window 120 (upper)			0.68	1.11	57.66	0.5	69.0	1.0%	
Total ADF for room	Bedroom	1.0%						**1.0%**	**Pass**
Window 121 (lower)			0.68	0.5	55.42	0.71	64.8	0.3%	
Window 121 (upper)			0.68	1.3	55.42	0.71	72.6	2.4%	
Total ADF for room	Bedroom	1.0%						**2.7%**	**Pass**
Window 122 (lower)			0.68	1.05	65.76	0.67	75.4	0.6%	
Window 122 (upper)			0.68	2.73	65.76	0.67	78.4	4.0%	
Window 123 (lower)			0.68	0.5	65.76	0.67	37.1	0.1%	

Appendix 2 - Average Daylight Factor (ADF)
Twickenham Riverside, King Street, Twickenham TW1 3SD

Reference	Target ADF based on room use		Average Daylight Factor Coefficients					Actual ADF	
	Primary room use	ADF	T	Aw	A	R	Theta	ADF	Result
Window 123 (upper)			0.68	1.3	65.76	0.67	31.5	0.8%	
Total ADF for room	Bedroom	1.0%						**5.5%**	**Pass**
Window 124 (lower)			0.68	0.5	56.8	0.71	51.5	0.2%	
Window 124 (upper)			0.68	1.3	56.8	0.71	45.4	1.4%	
Total ADF for room	Bedroom	1.0%						**1.6%**	**Pass**
Window 125 (lower)			0.68	0.5	56.8	0.71	55.6	0.3%	
Window 125 (upper)			0.68	1.3	56.8	0.71	49.5	1.6%	
Total ADF for room	Bedroom	1.0%						**1.9%**	**Pass**
Window 126 (lower)			0.68	0.5	56.8	0.71	55.0	0.3%	
Window 126 (upper)			0.68	1.3	56.8	0.71	49.1	1.5%	
Total ADF for room	Bedroom	1.0%						**1.8%**	**Pass**
Window 127 (lower)			0.68	0.5	56.8	0.71	46.2	0.2%	
Window 127 (upper)			0.68	1.3	56.8	0.71	42.8	1.3%	
Total ADF for room	Bedroom	1.0%						**1.5%**	**Pass**
Window 128 (lower)			0.68	0.28	59.84	0.69	68.3	0.2%	
Window 128 (upper)			0.68	1.04	59.84	0.69	72.2	1.6%	
Window 129 (lower)			0.68	0.28	59.84	0.69	67.9	0.2%	
Window 129 (upper)			0.68	1.04	59.84	0.69	72.0	1.6%	
Window 130 (lower)			0.68	0.27	59.84	0.69	82.4	0.2%	
Window 130 (upper)			0.68	1.05	59.84	0.69	83.9	1.9%	
Total ADF for room	Bedroom	1.0%						**5.7%**	**Pass**
Window 131 (lower)			0.68	0.27	59.53	0.71	85.0	0.2%	
Window 131 (upper)			0.68	1.05	59.53	0.71	85.8	2.1%	
Total ADF for room	Bedroom	1.0%						**2.3%**	**Pass**
Window 132 (lower)			0.68	0.27	110.82	0.66	86.3	0.1%	
Window 132 (upper)			0.68	1.05	110.82	0.66	86.8	1.0%	
Window 133 (lower)			0.68	0.27	110.82	0.66	86.4	0.1%	
Window 133 (upper)			0.68	1.05	110.82	0.66	86.9	1.0%	
Window 134 (lower)			0.68	0.71	110.82	0.66	87.2	0.3%	
Window 134 (upper)			0.68	1.05	110.82	0.66	87.7	1.0%	
Window 135 (lower)			0.68	0.71	110.82	0.66	84.1	0.3%	
Window 135 (upper)			0.68	1.05	110.82	0.66	85.5	1.0%	

Appendix 2 - Average Daylight Factor (ADF)
Twickenham Riverside, King Street, Twickenham TW1 3SD

Reference	Target ADF based on room use		Average Daylight Factor Coefficients					Actual ADF	
	Primary room use	ADF	T	Aw	A	R	Theta	ADF	Result
Window 136 (lower)			0.68	0.71	110.82	0.66	71.1	0.2%	
Window 136 (upper)			0.68	1.05	110.82	0.66	77.1	0.9%	
Total ADF for room	Living / Dining / Kitchen	2.0%						**5.9%**	**Pass**
Window 137 (lower)			0.68	0.27	73.16	0.72	89.1	0.2%	
Window 137 (upper)			0.68	1.05	73.16	0.72	88.9	1.8%	
Total ADF for room	Bedroom	1.0%						**2.0%**	**Pass**
Window 138 (lower)			0.68	0.27	72.71	0.72	89.1	0.2%	
Window 138 (upper)			0.68	1.05	72.71	0.72	88.9	1.8%	
Total ADF for room	Bedroom	1.0%						**2.0%**	**Pass**
Window 139 (lower)			0.68	0.71	102.5	0.7	73.5	0.3%	
Window 139 (upper)			0.68	1.05	102.5	0.7	79.0	1.1%	
Window 140 (lower)			0.68	0.71	102.5	0.7	81.2	0.3%	
Window 140 (upper)			0.68	1.05	102.5	0.7	83.5	1.1%	
Total ADF for room	Living / Dining / Kitchen	2.0%						**2.8%**	**Pass**
Window 142 (lower)			0.68	0.26	59.42	0.69	24.9	0.1%	
Window 142 (upper)			0.68	0.99	59.42	0.69	16.1	0.4%	
Window 141 (lower)			0.68	0.71	59.42	0.69	72.2	0.5%	
Window 141 (upper)			0.68	1.05	59.42	0.69	78.2	1.8%	
Total ADF for room	Bedroom	1.0%						**2.8%**	**Pass**
Window 143 (lower)			0.68	0.27	112.11	0.68	35.1	0.0%	
Window 143 (upper)			0.68	1.05	112.11	0.68	22.7	0.3%	
Window 144 (lower)			0.68	0.27	112.11	0.68	36.2	0.0%	
Window 144 (upper)			0.68	1.05	112.11	0.68	23.7	0.3%	
Window 145 (lower)			0.68	0.27	112.11	0.68	88.4	0.1%	
Window 145 (upper)			0.68	1.05	112.11	0.68	88.3	1.1%	
Window 146 (lower)			0.68	0.27	112.11	0.68	88.3	0.1%	
Window 146 (upper)			0.68	1.05	112.11	0.68	88.2	1.1%	
Total ADF for room	Living / Dining / Kitchen	2.0%						**3.0%**	**Pass**
Window 147 (lower)			0.68	0.27	58.29	0.67	86.7	0.2%	
Window 147 (upper)			0.68	1.05	58.29	0.67	86.8	1.9%	
Window 148 (lower)			0.68	0.27	58.29	0.67	88.0	0.2%	
Window 148 (upper)			0.68	1.05	58.29	0.67	87.8	1.9%	

Appendix 2 - Average Daylight Factor (ADF)
Twickenham Riverside, King Street, Twickenham TW1 3SD

Reference	Target ADF based on room use		Average Daylight Factor Coefficients					Actual ADF	
	Primary room use	ADF	T	Aw	A	R	Theta	ADF	Result
Window 149 (lower)			0.68	0.28	58.29	0.67	76.4	0.2%	
Window 149 (upper)			0.68	1.04	58.29	0.67	78.7	1.7%	
Window 150 (lower)			0.68	0.28	58.29	0.67	75.0	0.2%	
Window 150 (upper)			0.68	1.04	58.29	0.67	77.7	1.7%	
Total ADF for room	Bedroom	1.0%						**8.0%**	**Pass**
Proposed Third Floor									
Window 151 (lower)			0.68	0.15	154.21	0.72	85.8	0.0%	
Window 151 (upper)			0.68	0.87	154.21	0.72	86.5	0.7%	
Window 152 (lower)			0.68	0.15	154.21	0.72	85.8	0.0%	
Window 152 (upper)			0.68	0.87	154.21	0.72	86.5	0.7%	
Total ADF for room	Living / Dining / Kitchen	2.0%						**1.4%**	**Fail**
Window 153 (lower)			0.68	0.15	85.79	0.74	85.7	0.1%	
Window 153 (upper)			0.68	0.87	85.79	0.74	86.4	1.3%	
Total ADF for room	Bedroom	1.0%						**1.4%**	**Pass**
Window 154 (lower)			0.68	0.15	73.23	0.74	85.7	0.1%	
Window 154 (upper)			0.68	0.87	73.23	0.74	86.3	1.5%	
Total ADF for room	Bedroom	1.0%						**1.6%**	**Pass**
Window 155 (lower)			0.68	0.15	72.96	0.74	85.6	0.1%	
Window 155 (upper)			0.68	0.87	72.96	0.74	86.3	1.5%	
Total ADF for room	Bedroom	1.0%						**1.6%**	**Pass**
Window 156 (lower)			0.68	0.15	79.56	0.73	85.5	0.1%	
Window 156 (upper)			0.68	0.87	79.56	0.73	86.2	1.4%	
Total ADF for room	Bedroom	1.0%						**1.5%**	**Pass**
Window 157 (lower)			0.68	0.15	131.54	0.71	85.4	0.1%	
Window 157 (upper)			0.68	0.87	131.54	0.71	86.1	0.8%	
Window 158 (lower)			0.68	0.15	131.54	0.71	85.3	0.1%	
Window 158 (upper)			0.68	0.87	131.54	0.71	86.1	0.8%	
Window 159 (lower)			0.68	0.12	131.54	0.71	87.2	0.0%	
Window 159 (upper)			0.68	0.68	131.54	0.71	87.4	0.6%	
Window 160 (lower)			0.68	0.12	131.54	0.71	87.3	0.0%	
Window 160 (upper)			0.68	0.68	131.54	0.71	87.5	0.6%	
Total ADF for room	Living / Dining / Kitchen	2.0%						**3.0%**	**Pass**

Appendix 2 - Average Daylight Factor (ADF)
Twickenham Riverside, King Street, Twickenham TW1 3SD

Reference	Target ADF based on room use		Average Daylight Factor Coefficients					Actual ADF	
	Primary room use	ADF	T	Aw	A	R	Theta	ADF	Result
Window 161 (lower)			0.68	0.12	95.72	0.74	87.6	0.1%	
Window 161 (upper)			0.68	0.68	95.72	0.74	87.8	0.9%	
Total ADF for room	Bedroom	1.0%						**1.0%**	**Pass**
Window 162 (lower)			0.68	0.12	91.84	0.74	87.8	0.1%	
Window 162 (upper)			0.68	0.68	91.84	0.74	87.9	1.0%	
Total ADF for room	Bedroom	1.0%						**1.1%**	**Pass**
Window 163 (lower)			0.68	0.12	146.33	0.73	87.9	0.0%	
Window 163 (upper)			0.68	0.68	146.33	0.73	87.9	0.6%	
Window 164 (lower)			0.68	0.12	146.33	0.73	68.5	0.0%	
Window 164 (upper)			0.68	0.68	146.33	0.73	72.0	0.5%	
Total ADF for room	Living / Dining / Kitchen	2.0%						**1.1%**	**Fail**
Window 166 (lower)			0.68	1.49	126.18	0.7	82.0	0.5%	
Window 166 (upper)			0.68	2.36	126.18	0.7	85.7	2.1%	
Window 165 (lower)			0.68	0.14	126.18	0.7	66.6	0.0%	
Window 165 (upper)			0.68	0.83	126.18	0.7	73.6	0.6%	
Total ADF for room	Living / Dining / Kitchen	2.0%						**3.2%**	**Pass**
Window 168 (lower)			0.68	1.49	126.18	0.7	86.4	0.5%	
Window 168 (upper)			0.68	2.36	126.18	0.7	88.6	2.2%	
Window 167 (lower)			0.68	0.14	126.18	0.7	87.0	0.1%	
Window 167 (upper)			0.68	0.83	126.18	0.7	87.5	0.8%	
Total ADF for room	Living / Dining / Kitchen	2.0%						**3.6%**	**Pass**
Window 170 (lower)			0.68	1.49	126.18	0.7	86.6	0.5%	
Window 170 (upper)			0.68	2.36	126.18	0.7	89.0	2.2%	
Window 169 (lower)			0.68	0.14	126.18	0.7	88.2	0.1%	
Window 169 (upper)			0.68	0.83	126.18	0.7	88.3	0.8%	
Total ADF for room	Living / Dining / Kitchen	2.0%						**3.6%**	**Pass**
Window 172 (lower)			0.68	1.5	126.18	0.7	86.1	0.5%	
Window 172 (upper)			0.68	2.33	126.18	0.7	89.0	2.2%	
Window 171 (lower)			0.68	0.14	126.18	0.7	88.4	0.1%	
Window 171 (upper)			0.68	0.83	126.18	0.7	88.4	0.8%	
Total ADF for room	Living / Dining / Kitchen	2.0%						**3.6%**	**Pass**

Appendix 2 - Average Daylight Factor (ADF)
Twickenham Riverside, King Street, Twickenham TW1 3SD

Reference	Target ADF based on room use		Average Daylight Factor Coefficients					Actual ADF	
	Primary room use	ADF	T	Aw	A	R	Theta	ADF	Result
Window 173 (lower)			0.68	0.7	70.5	0.71	83.8	0.5%	
Window 173 (upper)			0.68	1.11	70.5	0.71	86.7	1.9%	
Window 174 (lower)			0.68	0.7	70.5	0.71	52.1	0.3%	
Window 174 (upper)			0.68	1.11	70.5	0.71	86.6	1.9%	
Total ADF for room	Bedroom	1.0%						**4.6%**	**Pass**
Window 175 (lower)			0.68	0.7	70.5	0.73	52.1	0.3%	
Window 175 (upper)			0.68	1.11	70.5	0.73	86.1	1.9%	
Total ADF for room	Bedroom	1.0%						**2.2%**	**Pass**
Window 176 (lower)			0.68	0.7	70.5	0.73	52.0	0.3%	
Window 176 (upper)			0.68	1.11	70.5	0.73	85.5	1.9%	
Total ADF for room	Bedroom	1.0%						**2.2%**	**Pass**
Window 177 (lower)			0.68	0.7	70.5	0.73	74.3	0.4%	
Window 177 (upper)			0.68	1.11	70.5	0.73	79.8	1.8%	
Total ADF for room	Bedroom	1.0%						**2.2%**	**Pass**

Appendix 2 - Room Depth Calculation

Twickenham Riverside, King Street, Twickenham TW1 3SD

Room	Room Depth Coefficients				Room Depth Calculation			Result
	L	W	H	Rb	L/W + L/H	<=	2/1-Rb	
Proposed First Floor								
Window 1	8.7	3.8	2.2	0.7	6.24	<=	6.71	Pass
Window 2	8.7	3.8	2.2	0.7	6.24	<=	6.71	Pass
Window 3	5.5	2.8	2.2	0.72	4.46	<=	7.18	Pass
Window 4	5.6	2.8	2.2	0.72	4.55	<=	7.19	Pass
Window 5	4.3	3.1	2.2	0.72	3.34	<=	7.04	Pass
Window 6	4.5	3.0	2.2	0.72	3.55	<=	7.03	Pass
Window 7	6.8	5.4	2.2	0.68	4.35	<=	6.24	Pass
Window 8	6.8	5.4	2.2	0.68	4.35	<=	6.24	Pass
Window 9	5.4	6.8	2.2	0.68	3.25	<=	6.24	Pass
Window 10	5.4	6.8	2.2	0.68	3.25	<=	6.24	Pass
Window 11	5.4	6.8	2.2	0.68	3.25	<=	6.24	Pass
Window 12	7.1	2.8	2.2	0.72	5.76	<=	7.24	Pass
Window 13	6.0	2.7	2.2	0.72	4.95	<=	7.11	Pass
Window 16	7.2	4.6	2.2	0.68	4.84	<=	6.35	Pass
Window 17	6.7	4.9	2.2	0.68	4.41	<=	6.35	Pass
Window 18	6.6	4.6	2.1	0.68	4.58	<=	6.29	Pass
Window 19	6.1	4.9	2.2	0.68	4.02	<=	6.29	Pass
Window 20	7.2	4.6	2.1	0.68	4.99	<=	6.29	Pass
Window 21	6.7	4.9	2.2	0.68	4.41	<=	6.29	Pass
Window 22	6.6	4.6	2.1	0.68	4.58	<=	6.29	Pass
Window 23	6.1	4.9	2.2	0.68	4.02	<=	6.29	Pass
Window 24	7.8	3.9	2.3	0.69	5.39	<=	6.46	Pass
Window 25	3.7	3.7	2.2	0.71	2.68	<=	6.93	Pass
Window 26	3.9	3.7	2.2	0.71	2.83	<=	7.01	Pass
Window 27	4.8	6.1	2.2	0.68	2.97	<=	6.18	Pass
Window 28	6.1	4.8	2.2	0.68	4.04	<=	6.18	Pass
Window 29	6.1	4.8	2.2	0.68	4.04	<=	6.18	Pass
Window 30	6.8	3.0	2.2	0.71	5.36	<=	7.02	Pass
Window 31	5.5	3.0	2.2	0.71	4.33	<=	6.88	Pass

Appendix 2 - Room Depth Calculation

Twickenham Riverside, King Street, Twickenham TW1 3SD

Room	Room Depth Coefficients				Room Depth Calculation			Result
	L	W	H	Rb	L/W + L/H	<=	2/1-Rb	
Window 35	5.5	3.0	2.2	0.71	4.33	<=	6.88	Pass
Window 36	6.8	3.0	2.2	0.71	5.36	<=	7.02	Pass
Window 37	4.3	2.8	2.2	0.71	3.49	<=	6.93	Pass
Window 38	5.5	6.8	2.2	0.67	3.31	<=	6.01	Pass
Window 39	5.5	6.8	2.2	0.67	3.31	<=	6.01	Pass
Window 40	6.6	5.5	2.2	0.67	4.2	<=	6.01	Pass
Window 41	6.8	5.5	2.2	0.67	4.33	<=	6.01	Pass
Window 42	6.8	5.5	2.2	0.67	4.33	<=	6.13	Pass
Window 43	5.9	7.5	2.2	0.67	3.47	<=	6.13	Pass
Window 44	5.5	6.8	2.2	0.67	3.31	<=	6.13	Pass
Window 45	4.4	2.8	2.2	0.71	3.57	<=	6.93	Pass
Window 46	4.2	2.8	2.2	0.71	3.41	<=	7.01	Pass
Window 47	4.1	4.1	2.2	0.67	2.86	<=	6.05	Pass
Window 48	4.1	4.1	2.2	0.67	2.86	<=	6.05	Pass
Window 49	3.4	3.4	2.2	0.71	2.55	<=	6.87	Pass
Window 50	3.4	3.5	2.2	0.71	2.52	<=	6.87	Pass
Window 51	3.4	3.4	2.2	0.71	2.55	<=	6.87	Pass
Window 52	3.4	3.5	2.2	0.71	2.52	<=	6.87	Pass
Window 53	2.2	5.3	2.1	0.67	1.46	<=	6.15	Pass
Window 54	2.2	5.3	2.1	0.67	1.46	<=	6.15	Pass
Window 55	5.3	2.2	2.1	0.67	4.93	<=	6.15	Pass
Window 56	4.4	2.8	2.1	0.71	3.67	<=	6.88	Pass
Window 57	5.9	4.9	2.1	0.66	4.01	<=	5.81	Pass
Window 58	5.6	4.9	2.1	0.66	3.81	<=	5.81	Pass
Window 59	4.9	5.9	2.1	0.66	3.16	<=	5.81	Pass
Window 60	4.9	5.9	2.1	0.66	3.16	<=	5.81	Pass
Window 61	4.9	5.9	2.1	0.66	3.16	<=	5.81	Pass
Window 62	6.2	2.8	2.1	0.72	5.17	<=	7.06	Pass
Window 63	5.9	2.8	2.1	0.71	4.92	<=	6.95	Pass

Appendix 2 - Room Depth Calculation
Twickenham Riverside, King Street, Twickenham TW1 3SD

Room	Room Depth Coefficients				Room Depth Calculation			Result
	L	W	H	Rb	L/W + L/H	<=	2/1-Rb	
Window 64	8.3	3.2	2.1	0.7	6.55	<=	6.66	Pass
Window 65	8.3	3.2	2.1	0.7	6.55	<=	6.66	Pass
Window 66	3.7	3.3	2.1	0.69	2.88	<=	6.42	Pass
Window 67	3.7	3.3	2.1	0.69	2.88	<=	6.42	Pass
Window 68	7.0	4.0	2.1	0.67	5.08	<=	6.1	Pass
Window 69	7.0	4.0	2.1	0.67	5.08	<=	6.1	Pass
Window 70	4.0	7.0	2.1	0.67	2.48	<=	6.1	Pass
Window 71	4.0	7.0	2.1	0.67	2.48	<=	6.1	Pass
Window 72	3.8	3.3	2.1	0.65	2.96	<=	5.68	Pass
Window 73	3.8	3.3	2.1	0.65	2.96	<=	5.68	Pass
Window 74	3.3	3.8	2.1	0.65	2.44	<=	5.68	Pass
Window 75	3.3	3.8	2.1	0.65	2.44	<=	5.68	Pass
Proposed Second Floor								
Window 76	8.7	3.8	2.1	0.7	6.43	<=	6.72	Pass
Window 77	8.7	3.8	2.1	0.7	6.43	<=	6.72	Pass
Window 78	5.5	2.8	2.1	0.72	4.58	<=	7.19	Pass
Window 79	5.6	2.8	2.1	0.72	4.67	<=	7.2	Pass
Window 80	4.3	3.7	2.1	0.72	3.21	<=	7.06	Pass
Window 81	4.5	3.6	2.1	0.72	3.39	<=	7.05	Pass
Window 82	6.8	5.4	2.1	0.68	4.5	<=	6.29	Pass
Window 83	6.8	5.4	2.1	0.68	4.5	<=	6.29	Pass
Window 84	5.4	6.8	2.0	0.68	3.49	<=	6.29	Pass
Window 85	5.4	6.8	2.0	0.68	3.49	<=	6.29	Pass
Window 86	5.4	6.8	2.0	0.68	3.49	<=	6.29	Pass
Window 87	7.1	2.8	2.0	0.72	6.09	<=	7.27	Pass
Window 88	6.0	2.7	2.0	0.72	5.22	<=	7.13	Pass
Window 91	7.2	4.6	2.4	0.68	4.57	<=	6.35	Pass
Window 92	6.7	4.9	2.2	0.68	4.41	<=	6.35	Pass
Window 93	6.6	4.6	2.3	0.68	4.3	<=	6.29	Pass
Window 94	6.1	4.9	2.2	0.68	4.02	<=	6.29	Pass

Appendix 2 - Room Depth Calculation

Twickenham Riverside, King Street, Twickenham TW1 3SD

Room	Room Depth Coefficients				Room Depth Calculation			Result
	L	W	H	Rb	L/W + L/H	<=	2/1-Rb	
Window 95	7.2	4.6	2.3	0.68	4.7	<=	6.29	Pass
Window 96	6.7	4.9	2.2	0.68	4.41	<=	6.29	Pass
Window 97	7.2	4.6	2.3	0.68	4.7	<=	6.29	Pass
Window 98	6.7	4.9	2.2	0.68	4.41	<=	6.29	Pass
Window 99	7.8	3.9	2.5	0.69	5.12	<=	6.46	Pass
Window 100	3.7	3.7	2.2	0.71	2.68	<=	6.93	Pass
Window 101	3.9	3.7	2.2	0.71	2.83	<=	7.01	Pass
Window 102	4.8	6.1	2.2	0.68	2.97	<=	6.18	Pass
Window 103	6.1	4.8	2.2	0.68	4.04	<=	6.18	Pass
Window 104	6.1	4.8	2.2	0.68	4.04	<=	6.18	Pass
Window 105	6.8	3.0	2.2	0.71	5.36	<=	7.02	Pass
Window 106	5.5	3.0	2.2	0.71	4.33	<=	6.88	Pass
Window 110	5.5	3.0	2.2	0.71	4.33	<=	6.88	Pass
Window 111	6.8	3.0	2.2	0.71	5.36	<=	7.02	Pass
Window 112	4.4	2.8	2.2	0.71	3.57	<=	6.93	Pass
Window 113	5.5	6.8	2.2	0.67	3.31	<=	6.01	Pass
Window 114	5.5	6.8	2.2	0.67	3.31	<=	6.01	Pass
Window 115	6.6	5.5	2.2	0.67	4.2	<=	6.01	Pass
Window 116	6.8	5.5	2.2	0.67	4.33	<=	6.01	Pass
Window 117	6.8	5.5	2.2	0.68	4.33	<=	6.18	Pass
Window 118	5.9	7.5	2.2	0.68	3.47	<=	6.18	Pass
Window 119	5.5	6.8	2.2	0.68	3.31	<=	6.18	Pass
Window 120	4.4	2.8	2.2	0.71	3.57	<=	6.93	Pass
Window 121	4.2	2.8	2.4	0.71	3.25	<=	7.01	Pass
Window 122	4.1	4.1	2.4	0.67	2.71	<=	6.05	Pass
Window 123	4.1	4.1	2.4	0.67	2.71	<=	6.05	Pass
Window 124	3.4	3.4	2.4	0.71	2.42	<=	6.87	Pass
Window 125	3.4	3.5	2.4	0.71	2.39	<=	6.87	Pass
Window 126	3.4	3.4	2.4	0.71	2.42	<=	6.87	Pass

Appendix 2 - Room Depth Calculation
Twickenham Riverside, King Street, Twickenham TW1 3SD

Room	Room Depth Coefficients				Room Depth Calculation			Result
	L	W	H	Rb	L/W + L/H	<=	2/1-Rb	
Window 127	3.4	3.5	2.4	0.71	2.39	<=	6.87	Pass
Window 128	2.2	5.3	2.1	0.69	1.46	<=	6.45	Pass
Window 129	2.2	5.3	2.1	0.69	1.46	<=	6.45	Pass
Window 130	5.3	2.2	2.1	0.69	4.93	<=	6.45	Pass
Window 131	4.4	2.8	2.1	0.71	3.67	<=	7.0	Pass
Window 132	5.9	4.9	2.1	0.66	4.01	<=	5.9	Pass
Window 133	5.6	4.9	2.1	0.66	3.81	<=	5.9	Pass
Window 134	4.9	5.9	2.1	0.66	3.16	<=	5.9	Pass
Window 135	4.9	5.9	2.1	0.66	3.16	<=	5.9	Pass
Window 136	4.9	5.9	2.1	0.66	3.16	<=	5.9	Pass
Window 137	6.2	2.8	2.1	0.72	5.17	<=	7.16	Pass
Window 138	5.9	2.8	2.1	0.72	4.92	<=	7.05	Pass
Window 139	8.3	3.2	2.1	0.7	6.55	<=	6.66	Pass
Window 140	8.3	3.2	2.1	0.7	6.55	<=	6.66	Pass
Window 141	3.7	3.3	2.1	0.69	2.88	<=	6.52	Pass
Window 142	3.7	3.3	2.1	0.69	2.88	<=	6.52	Pass
Window 143	7.0	4.0	2.1	0.68	5.08	<=	6.31	Pass
Window 144	7.0	4.0	2.1	0.68	5.08	<=	6.31	Pass
Window 145	4.0	7.0	2.1	0.68	2.48	<=	6.31	Pass
Window 146	4.0	7.0	2.1	0.68	2.48	<=	6.31	Pass
Window 147	3.8	3.3	2.1	0.67	2.96	<=	6.04	Pass
Window 148	3.8	3.3	2.1	0.67	2.96	<=	6.04	Pass
Window 149	3.3	3.8	2.1	0.67	2.44	<=	6.04	Pass
Window 150	3.3	3.8	2.1	0.67	2.44	<=	6.04	Pass
Proposed Third Floor								
Window 151	8.4	4.1	2.1	0.72	6.05	<=	7.08	Pass
Window 152	8.4	4.1	2.1	0.72	6.05	<=	7.08	Pass
Window 153	5.2	3.1	2.1	0.74	4.15	<=	7.56	Pass
Window 154	5.3	2.2	2.1	0.74	4.93	<=	7.7	Pass
Window 155	4.0	3.3	2.1	0.74	3.12	<=	7.62	Pass
Window 156	4.1	3.6	2.1	0.73	3.09	<=	7.54	Pass

Appendix 2 - Room Depth Calculation

Twickenham Riverside, King Street, Twickenham TW1 3SD

Room	Room Depth Coefficients				Room Depth Calculation			Result
	L	W	H	Rb	L/W + L/H	<=	2/1-Rb	
Window 157	6.5	5.1	2.1	0.71	4.37	<=	6.97	Pass
Window 158	6.5	5.1	2.1	0.71	4.37	<=	6.97	Pass
Window 159	5.1	6.5	2.1	0.71	3.21	<=	6.97	Pass
Window 160	5.1	6.5	2.1	0.71	3.21	<=	6.97	Pass
Window 161	6.8	2.9	2.1	0.74	5.58	<=	7.78	Pass
Window 162	5.7	2.7	2.1	0.74	4.83	<=	7.67	Pass
Window 163	9.1	3.2	2.1	0.73	7.18	<=	7.29	Pass
Window 164	2.9	9.1	2.1	0.73	1.7	<=	7.29	Pass
Window 165	6.0	4.6	2.2	0.7	4.03	<=	6.7	Pass
Window 166	6.0	4.6	2.2	0.7	4.03	<=	6.7	Pass
Window 167	6.0	4.6	2.2	0.7	4.03	<=	6.7	Pass
Window 168	6.0	4.6	2.2	0.7	4.03	<=	6.7	Pass
Window 169	6.0	4.6	2.2	0.7	4.03	<=	6.7	Pass
Window 170	6.0	4.6	2.2	0.7	4.03	<=	6.7	Pass
Window 171	6.0	4.6	2.2	0.7	4.03	<=	6.7	Pass
Window 172	6.0	4.6	2.2	0.7	4.03	<=	6.7	Pass
Window 173	3.4	3.5	2.2	0.71	2.52	<=	6.87	Pass
Window 174	3.4	3.5	2.2	0.71	2.52	<=	6.87	Pass
Window 175	3.4	3.4	2.2	0.73	2.55	<=	7.31	Pass
Window 176	3.4	3.5	2.2	0.73	2.52	<=	7.31	Pass
Window 177	3.4	3.4	2.2	0.73	2.55	<=	7.31	Pass

Appendix 2 - Sunlight to Windows
Twickenham Riverside, King Street, Twickenham TW1 3SD

Reference	Use Class	Annual Probable Sunlight Hours	
		Total	Winter
Proposed First Floor			
Window 1	Living / Dining / Kitchen	19%	2%
Window 2	Living / Dining / Kitchen	22%	4%
Window 7	Living / Dining / Kitchen	23%	4%
Window 8	Living / Dining / Kitchen	22%	4%
Window 9	Living / Dining / Kitchen	26%	4%
Window 10	Living / Dining / Kitchen	26%	4%
Window 11	Living / Dining / Kitchen	26%	4%
Window 14	Living / Dining / Kitchen	26%	4%
Window 15	Living / Dining / Kitchen	26%	4%
Window 16	Living / Dining / Kitchen	5%	0%
Window 17	Living / Dining / Kitchen	6%	0%
Window 18	Living / Dining / Kitchen	5%	0%
Window 19	Living / Dining / Kitchen	6%	0%
Window 20	Living / Dining / Kitchen	5%	0%
Window 21	Living / Dining / Kitchen	6%	0%
Window 22	Living / Dining / Kitchen	5%	0%
Window 23	Living / Dining / Kitchen	6%	0%
Window 24	Living / Dining / Kitchen	1%	0%
Window 27	Living / Dining / Kitchen	27%	4%
Window 28	Living / Dining / Kitchen	34%	17%
Window 29	Living / Dining / Kitchen	38%	21%
Window 32	Living / Dining / Kitchen	35%	16%
Window 33	Living / Dining / Kitchen	44%	11%
Window 34	Living / Dining / Kitchen	27%	11%
Window 38	Living / Dining / Kitchen	48%	12%
Window 39	Living / Dining / Kitchen	52%	17%
Window 40	Living / Dining / Kitchen	71%	24%
Window 41	Living / Dining / Kitchen	66%	26%
Window 42	Living / Dining / Kitchen	64%	25%
Window 43	Living / Dining / Kitchen	47%	14%
Window 44	Living / Dining / Kitchen	22%	5%
Window 57	Living / Dining / Kitchen	24%	3%

Appendix 2 - Sunlight to Windows
Twickenham Riverside, King Street, Twickenham TW1 3SD

Reference	Use Class	Annual Probable Sunlight Hours	
		Total	Winter
Window 58	Living / Dining / Kitchen	24%	3%
Window 59	Living / Dining / Kitchen	27%	16%
Window 60	Living / Dining / Kitchen	34%	15%
Window 61	Living / Dining / Kitchen	29%	9%
Window 64	Living / Dining / Kitchen	31%	17%
Window 65	Living / Dining / Kitchen	36%	16%
Window 68	Living / Dining / Kitchen	1%	1%
Window 69	Living / Dining / Kitchen	3%	3%
Window 70	Living / Dining / Kitchen	73%	26%
Window 71	Living / Dining / Kitchen	73%	26%
Proposed Second Floor			
Window 76	Living / Dining / Kitchen	21%	2%
Window 77	Living / Dining / Kitchen	23%	3%
Window 82	Living / Dining / Kitchen	24%	4%
Window 83	Living / Dining / Kitchen	24%	4%
Window 84	Living / Dining / Kitchen	27%	4%
Window 85	Living / Dining / Kitchen	27%	4%
Window 86	Living / Dining / Kitchen	27%	4%
Window 89	Living / Dining / Kitchen	27%	4%
Window 90	Living / Dining / Kitchen	27%	4%
Window 91	Living / Dining / Kitchen	6%	0%
Window 92	Living / Dining / Kitchen	7%	0%
Window 93	Living / Dining / Kitchen	6%	0%
Window 94	Living / Dining / Kitchen	7%	0%
Window 95	Living / Dining / Kitchen	6%	0%
Window 96	Living / Dining / Kitchen	7%	0%
Window 97	Living / Dining / Kitchen	6%	0%
Window 98	Living / Dining / Kitchen	7%	0%
Window 99	Living / Dining / Kitchen	1%	0%
Window 102	Living / Dining / Kitchen	22%	4%
Window 103	Living / Dining / Kitchen	61%	22%
Window 104	Living / Dining / Kitchen	61%	22%

Appendix 2 - Sunlight to Windows
Twickenham Riverside, King Street, Twickenham TW1 3SD

Reference	Use Class	Annual Probable Sunlight Hours	
		Total	Winter
Window 107	Living / Dining / Kitchen	66%	24%
Window 108	Living / Dining / Kitchen	61%	22%
Window 109	Living / Dining / Kitchen	62%	23%
Window 113	Living / Dining / Kitchen	56%	18%
Window 114	Living / Dining / Kitchen	57%	18%
Window 115	Living / Dining / Kitchen	66%	26%
Window 116	Living / Dining / Kitchen	73%	26%
Window 117	Living / Dining / Kitchen	73%	26%
Window 118	Living / Dining / Kitchen	38%	13%
Window 119	Living / Dining / Kitchen	20%	5%
Window 132	Living / Dining / Kitchen	24%	3%
Window 133	Living / Dining / Kitchen	24%	3%
Window 134	Living / Dining / Kitchen	67%	22%
Window 135	Living / Dining / Kitchen	63%	18%
Window 136	Living / Dining / Kitchen	49%	8%
Window 139	Living / Dining / Kitchen	63%	23%
Window 140	Living / Dining / Kitchen	65%	21%
Window 143	Living / Dining / Kitchen	4%	4%
Window 144	Living / Dining / Kitchen	7%	7%
Window 145	Living / Dining / Kitchen	73%	26%
Window 146	Living / Dining / Kitchen	73%	26%
Proposed Third Floor			
Window 151	Living / Dining / Kitchen	25%	4%
Window 152	Living / Dining / Kitchen	24%	4%
Window 157	Living / Dining / Kitchen	25%	4%
Window 158	Living / Dining / Kitchen	24%	4%
Window 159	Living / Dining / Kitchen	27%	4%
Window 160	Living / Dining / Kitchen	27%	4%
Window 163	Living / Dining / Kitchen	27%	4%
Window 164	Living / Dining / Kitchen	56%	10%
Window 165	Living / Dining / Kitchen	27%	4%
Window 166	Living / Dining / Kitchen	27%	4%

Appendix 2 - Sunlight to Windows
Twickenham Riverside, King Street, Twickenham TW1 3SD

Reference	Use Class	Annual Probable Sunlight Hours	
		Total	Winter
Window 167	Living / Dining / Kitchen	27%	4%
Window 168	Living / Dining / Kitchen	27%	4%
Window 169	Living / Dining / Kitchen	27%	4%
Window 170	Living / Dining / Kitchen	27%	4%
Window 171	Living / Dining / Kitchen	27%	4%
Window 172	Living / Dining / Kitchen	27%	4%