

Core Document 6



SYNTEGRA CONSULTING
Intelligent & Green Building Solutions

Daylight,
Sunlight &
Overshadowing
Report

April 2014

22 Lancaster Grove, London NW3 4PB



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Quality Standards Control

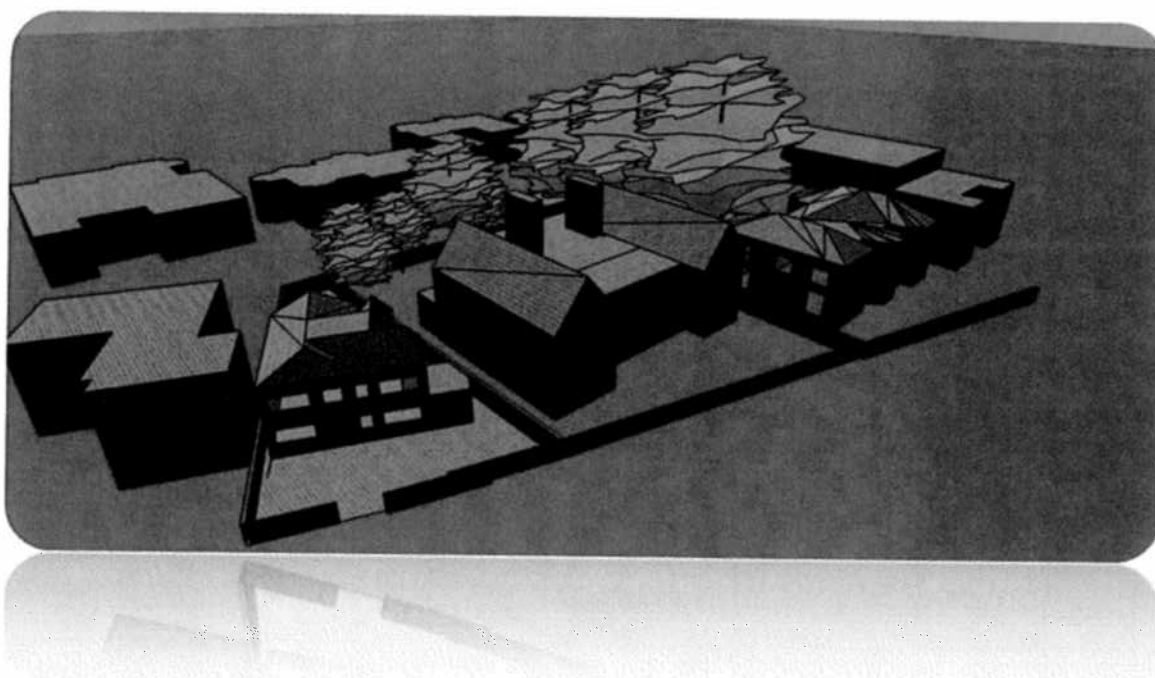
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1. Executive summary

This report demonstrates the impact of the proposed development **on the surrounding buildings and amenity areas/gardens/open spaces.**

The results of the assessment show that in terms of:

- Daylight, **none of the surrounding buildings** (18/20 and 24 Lancaster Grove) will be adversely impacted by the proposed development.
- Sunlight, **none of the surrounding buildings** (18/20 and 24 Lancaster Grove) will be adversely impacted by the proposed development.
- Overshadowing, **the two existing amenity areas/gardens** located at the rear of 18-20 Lancaster Grove (Amenity 1) and 24 Lancaster Grove (Amenity 2) will not be impacted by the proposed development.

On balance, it can be concluded that the surroundings buildings (18-20 Lancaster Grove and 24 Lancaster Grove) will not be adversely impacted by the proposed development provided that the following amendments are incorporated in the design:

- setting the proposed building in 1m parallel with the garage of 24 Lancaster Grove
- and dropping the height of the pitch roof by 200mm on this side (towards 24 Lancaster Grove)
- REV.A includes a further height reduction of the roof (toward 24 Lancaster Grove) by 400mm.

→ In conclusion the proposed scheme is considered acceptable.

2. Introduction

This report has been prepared to support the planning application for the proposed development at 22 Lancaster Grove, London NW3 4PB. Currently there is an existing residential building on site and the proposed scheme involves the construction of a new residential building including 4 houses.

The report assesses the daylight, sunlight and overshadowing effect of the proposed development on the surrounding buildings and specifically focuses on the windows of the residential buildings at 24 and 18-20 Lancaster Grove. The assessment is undertaken in accordance with **"BRE 209 Digest: Site Layout Planning For Daylight and Sunlight – A Guide to Good Practice"**. The existing & proposed drawings (in AutoCAD format) of the project were provided by **KAS Architecture and Interior Design Ltd** on the **17th February 2014** and have been used in preparing this report.

In order to minimise the impact on the surrounding neighbours and specially towards 24 Lancaster Grove it has been agreed with the architect to revise the proposed design. The following amendments will have to be incorporated in the design for the report to be correct:

- setting the building in 1m parallel with the garage of 24 Lancaster Grove
- and dropping the height of the pitch roof by 200mm on this side (towards 24 Lancaster Grove)
- REV.A includes a further height reduction of the roof (toward 24 Lancaster Grove) by 400mm.

The study has been undertaken by constructing a 3D IES model of the existing and proposed site and surrounding buildings in order to analyse the daylight, sunlight and overshadowing impact of the new development on the affected buildings. The assessment is based on 2D AutoCAD drawings (floor plans, sections and elevations).



3. Planning policy

There are no national or local policies specifically relating to daylight, sunlight and overshadowing.

4. Guidance document

4.1. Building Research Establishment (BRE) report (BRE 209): "Site layout planning for daylight and sunlight: A guide to good practice" Second Edition (2011)

The Second Edition of the report replaces the 1991 document of the same name and came into effect from October 2011.

It is important to note that the introduction to the report stresses that the document is provided for guidance purposes only and it is not intended to be interpreted as a strict and rigid set of rules. It also recommends that it may be appropriate to adopt a flexible approach and alternative target values in dealing with "special circumstances" for example "in a historic city centre, or in an area with modern high-rise buildings, a higher degree of obstruction may be unavoidable if new developments are to match the height and proportions of existing buildings". This is amplified by the following extracts from the introduction (p1, para. 6) and Section 2.2:

"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 designer. Although it gives numerical guidelines, these should be interpreted flexibly because natural lighting is only one of many factors in site layout design". (p1, para. 1.6)

"In special circumstances the Developer or Planning Authority may wish to use different target values". (p1, para. 1.6)

"Note that numerical values given here are purely advisory. Different criteria may be used, based upon the requirements for daylight in an area viewed against other site layout constraints. Another important issue is whether the existing building is itself a good neighbour, standing a reasonable distance from the boundary and taking no more than its fair share of light". (p7 para. 2.2.3)

The examples given in the report can be applied to any part of the country: suburban, urban and rural areas. The inflexible application of the target values given in the report may make reaching the BRE criteria difficult in a tight, urban environment where there is unlikely to be the same expectation of daylight and sunlight amenity as in a suburban or rural environment.



5. Assessment methodology

5.1. General

When assessing any potential effects on the surrounding properties, the BRE guidelines suggest that only those windows that have a reasonable expectation of daylight or sunlight need be assessed. In particular the BRE guidelines at paragraph 2.2.2 state:

"The guidelines given here are intended for use for rooms in adjoining dwellings where daylight is required, including living rooms, kitchens and bedrooms. Windows to bathrooms, toilets, storerooms, circulation areas and garages need not be analysed. The guidelines may also be applied to any existing non-domestic buildings where the occupants have a reasonable expectation of daylight; this would normally include schools, hospitals, hotels and hostels, small workshops and some offices."

Further to the above statement, it is considered that the vast majority of commercial properties do not have a reasonable expectation of daylight or sunlight. This is because they are generally designed to rely on electric lighting rather than natural daylight or sunlight.

This report assesses the potential impact of the proposed development in relation to daylight, sunlight and overshadowing on the residential buildings at 24, 18 and 20 Lancaster Grove. Specifically, it takes into consideration the possible effect and influence that the new development would have on the properties.

14 target surfaces (S1 to S14) for external levels of daylight VSCs (Vertical Sky Components) and sunlight availability, as shown in section 9.4 in Appendix, have been selected based on anticipated worse case impact judged from professional experience and also following guidance within the BRE guidelines "Site layout planning for daylight and sunlight".

Two existing amenity areas/gardens/open spaces have been identified on the drawings and/or site plan at the rear of 18-20 Lancaster Grove (Amenity 1) and 24 Lancaster Grove (Amenity 2).

The IES Virtual Environment modelling software utilised for the compilation of this report has been accredited by CIBSE and acknowledged by the BRE as a suitable software tool for undertaking daylight, sunlight and overshadowing assessments in accordance with the BRE Good Practice guidelines. The specific IES software modules utilised for this assessment are the following:

- ☐ ModelIT: enables you to create a 3D "Virtual Environment" model without CAD data, or alternatively allows you to create a 3D model from 2D CAD data. Interfaces with AutoCAD and Google Sketchup.
- ☐ Radiance: is a detailed 3D simulation tool designed to predict daylight and electric light levels, and the appearance of a space prior to construction. Vertical Sky Components (VSC) and Average Daylight Factors (ADF) can be simulated using Radiance.
- ☐ SunCast: produces visual, graphical and numerical information that can be used to explain to colleagues, clients and planning authorities how the sun impacts on and inside the building, and on the site.

If a property is considered to have a reasonable expectation of daylight or sunlight the following methodology to assess the impacts has been used.



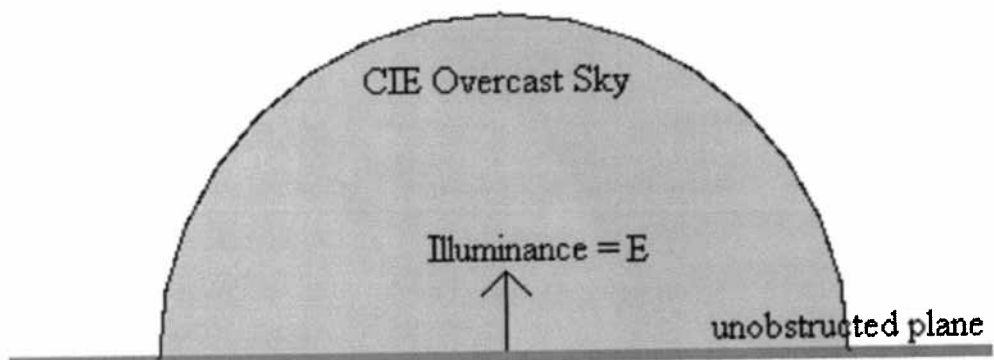
5.2. BRE Digest 209: "Site layout planning for daylight and sunlight"

This section provides a brief description of the calculating methods for the daylight, sunlight and overshadowing to gardens and open spaces criteria presented in BRE Digest 209.

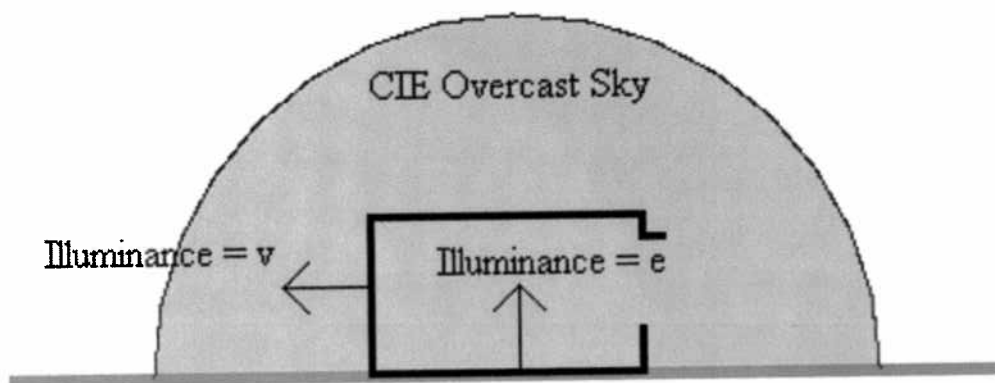
5.2.1. Daylight

The BRE guidelines "Site layout planning for daylight and sunlight" incorporate two main methods of calculating daylight: the Vertical Sky Component (VSC) method and the Average Daylight Factor (ADF) method.

The VSC method measures the amount of light available on the outside plane at the centre of a window, as a ratio (expressed as a percentage) of the amount of total unobstructed sky visible following the introduction of visible barriers such as buildings.



E = Illuminance on unobstructed plane



e = Illuminance at point in interior

Sky component = e/E (often expressed as a percentage %)

Vertical Sky Component (VSC) = v/E %

In this assessment, VSC is selected and more details on the numerical criteria for the VSC method are presented in section 9.6.



5.2.2. Sunlight

The BRE guidelines "*Site layout planning for daylight and sunlight*" recommend that access to sunlight is assessed with a development proposal. Potential impacts on available sunlight were assessed using the BRE's Annual Probable Sunlight Hours (APSH) method. This method involves the forecasting of sunlight availability throughout the year and in the winter months, for the main window of each habitable room that faces within 90° of due south. The buildings surrounding the site that do not contain windows that face within 90° of due south has been excluded from the sunlight assessment.

To provide a concise and comprehensive indicative analysis, the closest surfaces within the surrounding properties were analysed for both daylight and sunlight. Their locations are shown in section 9.4.1 in Appendix.

More details on the numerical criteria for the APSH method are presented in section 9.7.

5.2.3. Overshadowing to gardens and open spaces

The BRE guidelines "*Site layout planning for daylight and sunlight*" provide sunlight availability criteria for open spaces. In particular it gives guidance for calculating any areas of open space that may be in permanent shadow on 21st March.

In summary the BRE document states:

"It is suggested that, for it to appear adequately sunlit throughout the year, at least half of a garden or amenity area should receive at least two hours of sunlight on 21st March. If as a result of new development, an existing garden or amenity area does not meet these guidelines, and the area which can receive two hours of sun on 21st March is less than 0.8 times its former value, then the loss of sunlight is likely to be noticeable".

For this assessment the IES "Virtual Environment" SunCast software package has been used. A 3D model of the proposed and surrounding buildings was first modelled and the sunlight-tracking feature within the software used to view the shadow results. The study illustrated the extent of the shadow on one key date:

- March 21 (Spring Equinox)

More details on the numerical criteria for the overshadowing method are presented in section 9.8.



6. BRE Digest 209: Significant criteria

6.1. Daylight

The daylight criteria given within the BRE guidelines have been used as a basis to assess the potential impacts of the development:

"The daylighting is not considered to be substantially affected when the Vertical Sky Component (VSC) measured at the centre of a window is >27%. A window may be adversely affected if the VSC measured at the centre of the window is less than 27% and less than 0.8 times its former value".

In the assessment, the reduction between existing and proposed situations is expressed as a percentage, where a change in daylight levels above 20% equates to a figure of less than 0.8 times its former value.

Assessment points that do not meet the above criteria require further considerations to show the level of impact likely to be incurred.

6.2. Sunlight

The sunlight criteria given within the BRE guidelines have been used as a basis to assess the potential impacts of the development:

"A window may be adversely affected if a point at the centre of the window receives in the year less than 25% of the Annual Probable Sunlight Hours (APSH) including at least 5% of the APSH during the winter months (21st October to 21st March)".

Assessment points that do not meet the above criteria require further considerations to show the level of impact likely to be incurred.

6.3. Overshadowing to gardens and open spaces

The sunlight criteria given within the BRE guidelines have been used as a basis to assess the potential impacts of the development:

"It is suggested that, for it to appear adequately sunlit throughout the year, at least half of a garden or amenity area should receive at least two hours of sunlight on 21st March. If as a result of new development, an existing garden or amenity area does not meet these guidelines, and the area which can receive two hours of sun on 21st March is less than 0.8 times its former value, then the loss of sunlight is likely to be noticeable".

Assessment points that do not meet the above criteria require further considerations to show the level of impact likely to be incurred.



6.4. Criteria for assessing daylight, sunlight and overshadowing effects

The table 1 is a summary of the criteria to assess daylight, sunlight and overshadowing impacts:

Magnitude of effect	Criteria		
Major beneficial	An improvement ratio > 1.3 of the baseline value		
Moderate beneficial	An improvement ratio ≤ 1.3 and > 1.1 of the baseline value		
Minor beneficial	An improvement ratio ≤ 1.1 and > 1.0 of the baseline value		
Negligible	Daylight	Sunlight	Overshadowing
	A VSC of 27% or above in the proposed scenario with adequate daylight distribution Or A reduction ratio <1.0 and ≥ 0.8 of the baseline value	An APSH of 25%, of which 5% are in the winter months Or A reduction ratio <1.0 and ≥ 0.8 of the baseline value	50% of any amenity areas receiving at least 2 hours of direct sunlight on 21 st March Or A reduction ratio <1.0 and ≥ 0.8 of the baseline value
Minor adverse	A reduction ratio <0.8 and ≥ 0.7 of the baseline value		
Moderate adverse	A reduction ratio <0.7 and ≥ 0.6 of the baseline value		
Major adverse	A reduction ratio <0.6 of the baseline value		

Table 1: Criteria for assessing daylight, sunlight and overshadowing effects



7. Assessment

7.1. BS 8206-2: 1992

The foreword to BS 8206-2: 1992 states that:

"The aim of the standard is to give guidance to architects, builders and others who carry out lighting design. It is recognised that lighting is only one of many matters that influence fenestration. These include other aspects of environmental performance (such as noise, thermal equilibrium and the control of energy use), fire hazards, constructional requirements, the external appearance and the surroundings of the site. The best design for a building does not necessarily incorporate the ideal solution for any individual function. For this reason, careful judgement should be exercised when using the criteria given in the standards for other purposes, particularly town planning control."

7.2. Daylight

The daylight results are presented in section 9.6 in Appendix. The images and results show and compare the external levels of daylight (VSC – Vertical Sky Components) on the surfaces of 24 and 18-20 Lancaster Grove with and without the proposed development.

A summary of results is displayed in the table 2 below:

Building	Daylight assessment (Surrounding buildings)			Ratio	Result
	Target surface	VSC (existing) >27%	VSC (proposed) >27%		
24 Lancaster Grove - GF	Surface 1	34.40	33.90	0.99	Negligible
24 Lancaster Grove - FF	Surface 2	38.25	38.15	0.99	Negligible
24 Lancaster Grove - GF	Surface 3	25.90	25.65	0.99	Negligible
24 Lancaster Grove - FF	Surface 4	31.20	31.05	0.99	Negligible
24 Lancaster Grove - GF	Surface 5	23.70	30.25	0.86	Negligible
24 Lancaster Grove- FF	Surface 6	25.55	22.55	0.88	Negligible
18-20 Lancaster Grove - GF	Surface 7	14.95	14.00	0.93	Negligible
18-20 Lancaster Grove - FF	Surface 8	9.60	9.00	0.93	Negligible
18-20 Lancaster Grove - GF	Surface 9	16.36	10.45	0.63	Negligible
18-20 Lancaster Grove - FF	Surface 10	18.85	12.50	0.66	Negligible
18-20 Lancaster Grove - FF	Surface 11	20.85	17.80	0.85	Negligible
18-20 Lancaster Grove - FF	Surface 12	17.80	16.40	0.92	Negligible
18-20 Lancaster Grove - GF	Surface 13	15.10	15.00	0.99	Negligible
24 Lancaster Grove- GF	Surface 14	25.75	22.50	0.87	Negligible

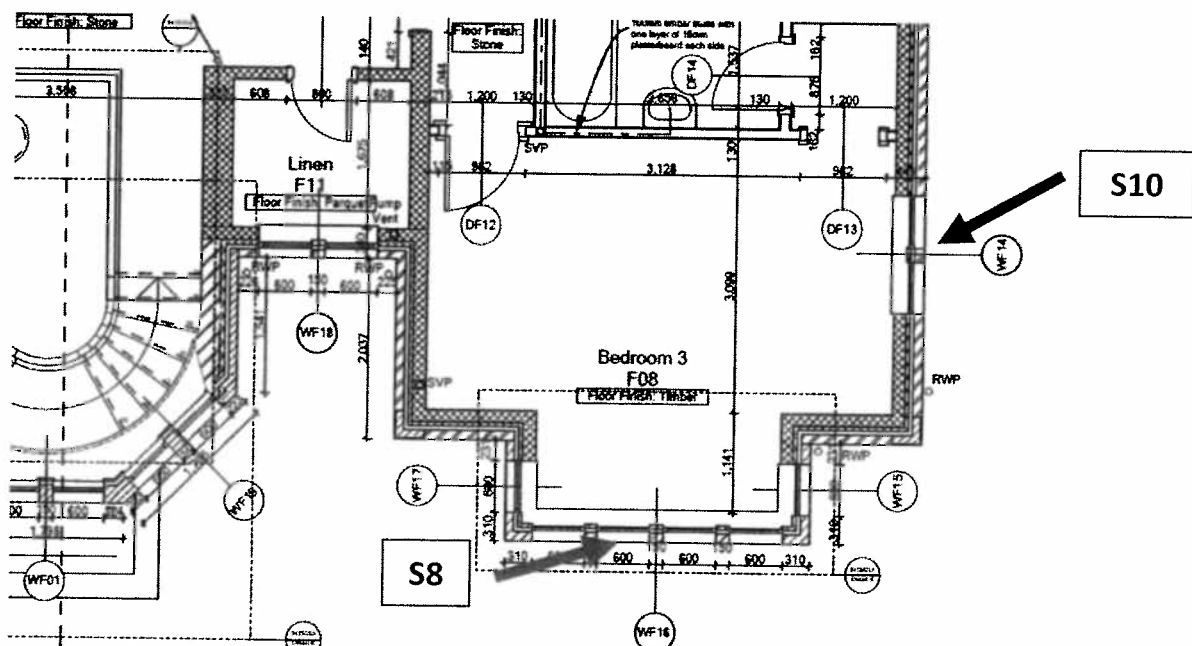
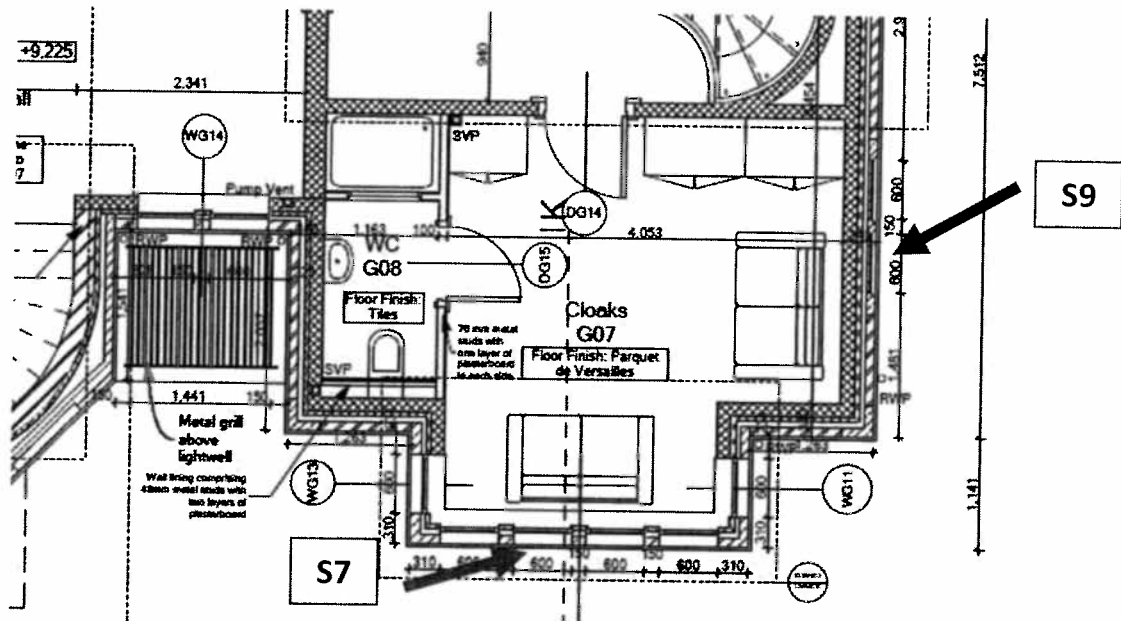


Table 2: Daylight results

Note: For location of target surfaces, see Appendix section 9.4 "Site plan and location"

As can be seen in the above table, the surfaces at 18-20 Lancaster Grove (S9- GF window and S10-FF window) will be adversely impacted by the proposed development.

- It has been found from the Camden Council website (planning application granted for 18-20 Lancaster grove, 2013/0955/P) that these 2 surfaces are secondary windows for a cloak room on the ground floor and a bedroom on the first floor.





- The above drawings show that S9 and S10 are secondary windows and as the main windows S7 and S8 are not impacted by the proposed development it can be concluded that the impact on S9 and S10 is negligible. Furthermore the cloak room is not considered as a habitable room and the impact is therefore irrelevant on S9.
- ✓ The slight loss in daylight for the other surfaces are not considered of concern as the VCS levels are either above 27% or more than 0.8 times their former values and will provide adequate levels of daylight.
- In terms of daylight the proposed scheme is considered acceptable.

It should be noted that the values provided in the BRE 209 are for guidance purposes only.

7.3. Sunlight

Where necessary (as defined in the Assessment Methodology section of this report) Annual Probable Sunlight Hours (APSH) tests have been undertaken with the results presented in section 9.7 in the appendix.

The table below indicates the likely levels of sunlight on the surfaces of 24 and 18-20 Lancaster Grove with and without the proposed development.

A summary of results is displayed in the table 3 below:

Sunlight assessment (Surrounding buildings)							
Building	Target surface	Total APSH >25%		Winter APSH >5%		Ratio	Result
		Existing	Proposed	Existing	Proposed		
24 Lancaster Grove	Surface 1	46.68	46.51	45.38	44.96	0.99	Negligible
24 Lancaster Grove	Surface 2	59.55	59.13	63.58	61.95	0.99	Negligible
24 Lancaster Grove	Surface 3	30.05	27.26	24.46	21.83	0.91	Negligible
24 Lancaster Grove	Surface 4	45.60	45.00	43.46	42.27	0.99	Negligible
24 Lancaster Grove	Surface 5	19.34	14.74	12.05	7.63	0.76	Negligible
24 Lancaster Grove	Surface 6	27.30	24.29	19.03	15.97	0.89	Negligible
18-20 Lancaster Grove	Surface 7	31.77	28.96	42.14	36.88	0.91	Negligible
18-20 Lancaster Grove	Surface 8	26.14	24.99	40.56	36.21	0.96	Negligible
18-20 Lancaster Grove	Surface 9	7.84	4.45	6.32	3.03	0.57	Negligible
18-20 Lancaster Grove	Surface 10	12.70	10.52	8.15	4.71	0.82	Negligible
18-20 Lancaster Grove	Surface 11	20.12	23.04	9.31	7.14	1.14	Minor beneficial
18-20 Lancaster Grove	Surface 12	27.49	28.24	11.11	12.60	1.02	Minor beneficial
18-20 Lancaster Grove	Surface 13	17.26	23.44	7.00	5.91	1.35	Minor beneficial



24 Lancaster Grove	Surface 14	30.50	25.39	25.17	18.61	0.83	Negligible
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Table 3: Sunlight results

Note: For location of target surfaces, see Appendix section 9.4 "Site plan and location"

The table above demonstrates that, the surface at 24 Lancaster Grove (S5-GF window) and 18-20 Lancaster Grove (S9- GF window) will be adversely impacted by the proposed development.

- With regard to S9-GF window (18-20 Lancaster Grove) same comment as for the daylight. It is a secondary window and furthermore the cloak room is not considered as a habitable room and the impact is therefore irrelevant.
- With regard to S5-GF window (24 Lancaster Grove) a site visit was carried out on 06.03.14 and confirm that this surface is a secondary window into the rear living room. Therefore as the main window S3 is not impacted by the proposed scheme it can be concluded that the impact on S5 is negligible.
- As it can be seen in the table above another positive note is that the surfaces 11, 12 and 13 achieve beneficial results with the proposed development.
- ✓ The slight loss in sunlight for the other surfaces are not considered of concern as the total APSH are either above >25% of which more than 5% are in winter months or more than 0.8 times their former values.
- In terms of sunlight the proposed scheme is considered acceptable.

It should be noted that the values provided in the BRE 209 are for guidance purposes only.



7.4. Overshadowing

The following results represent the cumulative overshadowing impacts of the proposed development. As identified from the AutoCAD drawings and/or site plan, two existing amenity areas/gardens/open spaces are located at the rear of 18-20 Lancaster Grove (Amenity 1) and 24 Lancaster Grove (Amenity 2). In accordance with the BRE guidelines, overshadowing has been assessed during times of the day where the sun's altitude is above 10° (from 7:30am to 5:00pm).

"It is suggested that, for it to appear adequately sunlit throughout the year, at least half of a garden or amenity area should receive at least two hours of sunlight on 21st March. If as a result of new development, an existing garden or amenity area does not meet these guidelines, and the area which can receive two hours of sun on 21st March is less than 0.8 times its former value, then the loss of sunlight is likely to be noticeable".

The pictures showing the overshadowing impact are indicated in section 9.8 of the Appendix.

A summary of results is displayed in the table 4 below:

Overshadowing assessment from 7.30am to 5.00pm % of area receiving sunlight on 21 st March				
Amenity area	Existing (%)	Proposed (%)	Ratio	Result
18-20 Lancaster Grove	44.76	42.57	0.95	Negligible
24 Lancaster Grove	14.42	14.00	0.97	Negligible

Table 4: Overshadowing results

Note: For location of target surfaces, see Appendix section 9.4 "Site plan and location"

As can be seen in the table above, the existing amenity areas/gardens/open spaces will not be adversely impacted by the proposed development.

→ The Amenity areas A1 and A2 will therefore receive adequate levels of sunlight throughout the year.

It should be noted that the values provided in the BRE 209 are for guidance purposes only.



8. Conclusion

8.1. Daylight

This report demonstrates that the levels of daylight are adequate for the building at 18-20 Lancaster Grove and 24 Lancaster Grove.

8.2. Sunlight

This report demonstrates that the levels of sunlight are adequate for the building at 18-20 Lancaster Grove and 24 Lancaster Grove.

8.3. Overshadowing

This report demonstrates that the two existing amenity areas/gardens located at the rear of 18-20 Lancaster Grove (Amenity 1) and 24 Lancaster Grove (Amenity 2) will not be impacted by the proposed development.

On balance, it can be concluded that the surroundings buildings (18-20 Lancaster Grove and 24 Lancaster Grove) will not be adversely impacted by the proposed development provided that the following amendments are incorporated in the design:

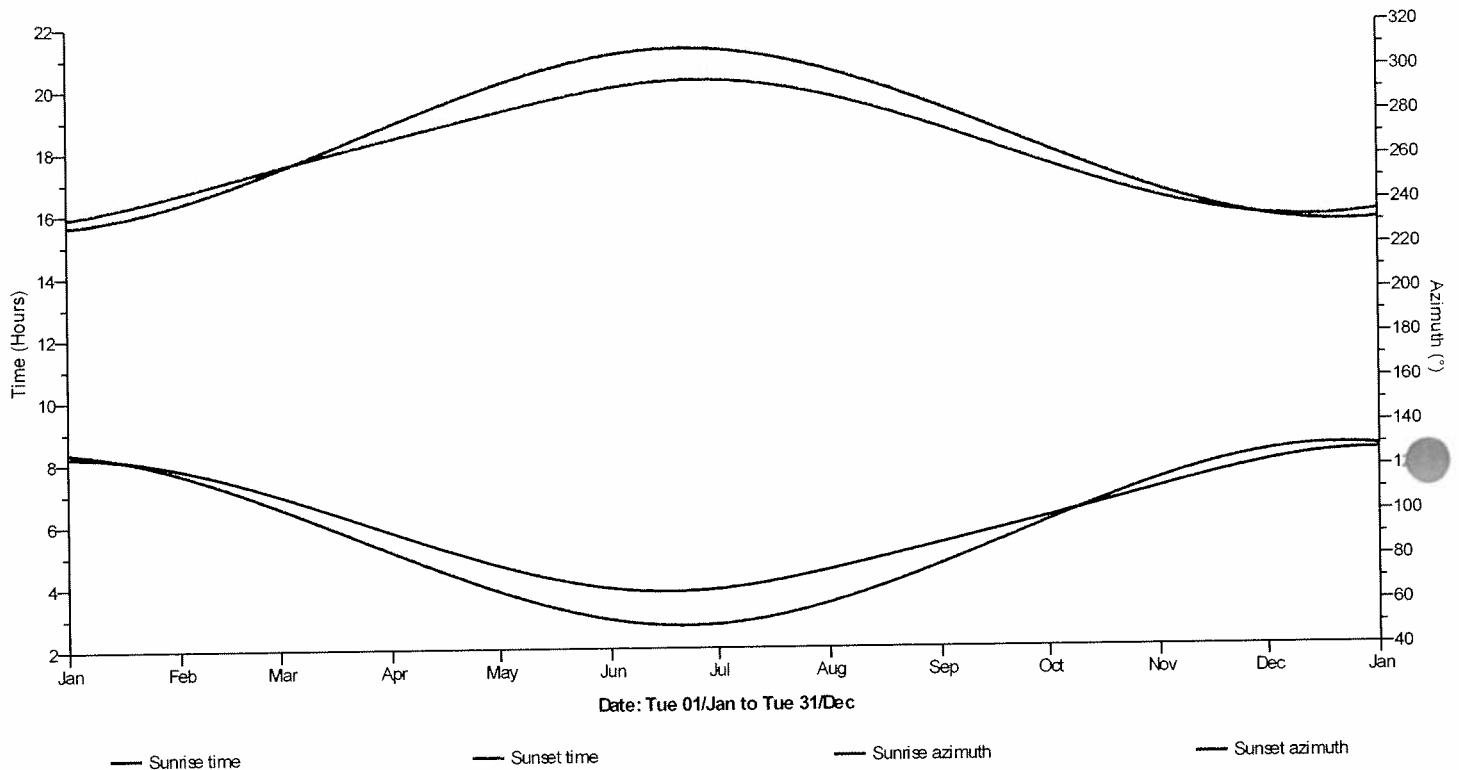
- setting the proposed building in 1m parallel with the garage of 24 Lancaster Grove
- and dropping the height of the pitch roof by 200mm on this side (towards 24 Lancaster Grove)
- REV.A includes a further height reduction of the roof (toward 24 Lancaster Grove) by 400mm.

➡ In conclusion the proposed scheme is considered acceptable.



9. Appendix

9.1. Sunrise and sunset time



9.2. Sun path

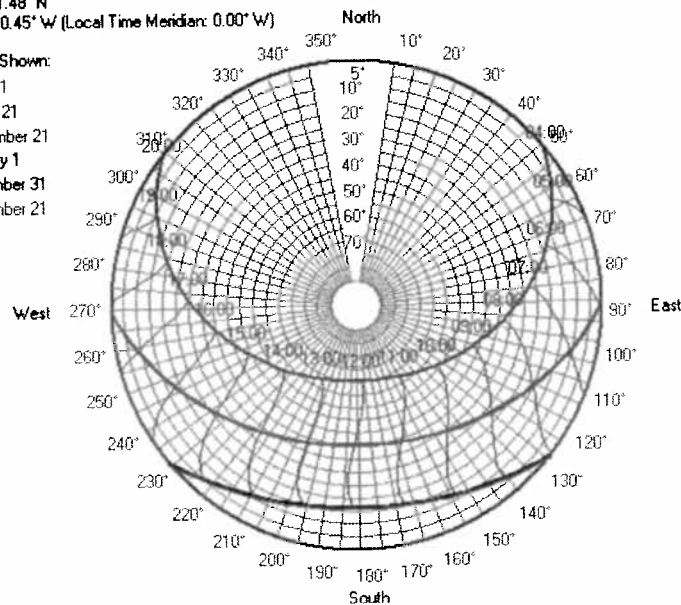
Location: London/Heathrow

Latitude: 51.48° N

Longitude: 0.45° W (Local Time Meridian: 0.00° W)

Sun Paths Shown:

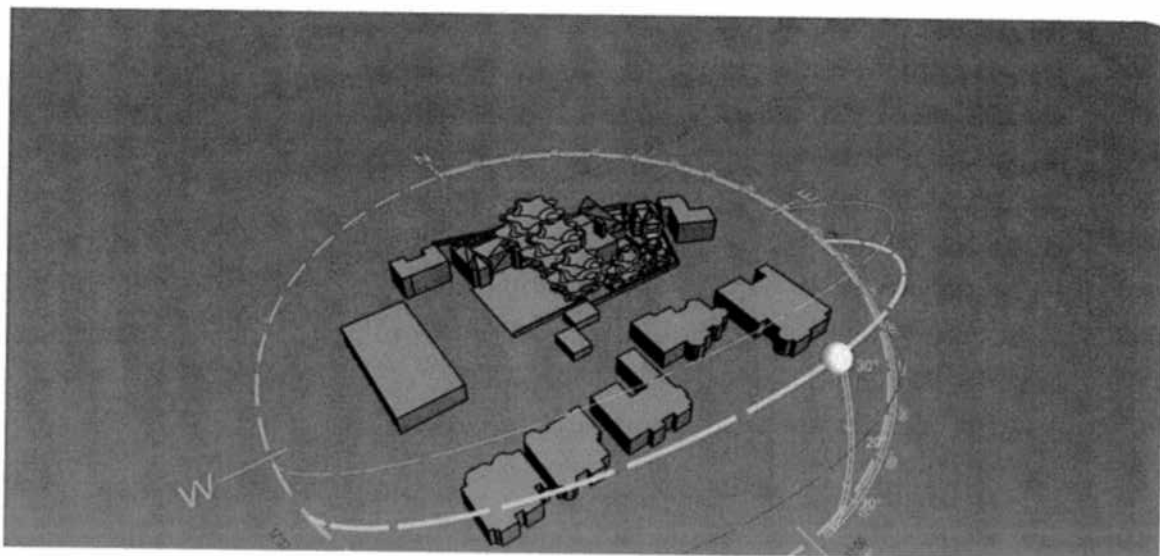
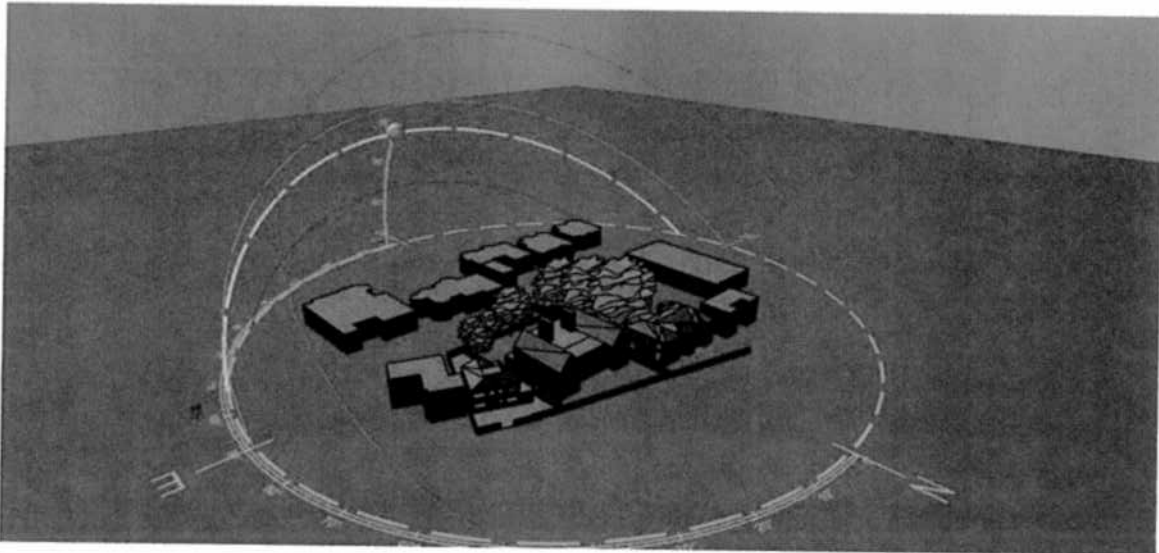
- June 21
- March 21
- September 21
- January 1
- December 31
- December 21





9.3. Suntrace

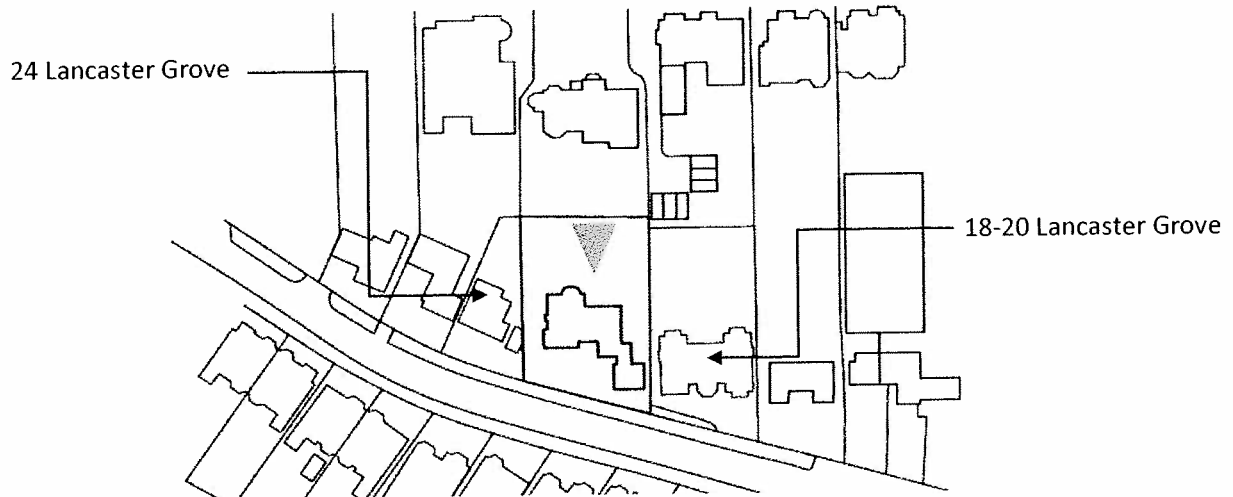
- ❖ The red line represents the sun's path during June.
- ❖ The yellow line represents the sun's path during March/September.
- ❖ The white line represents the sun's path during December.





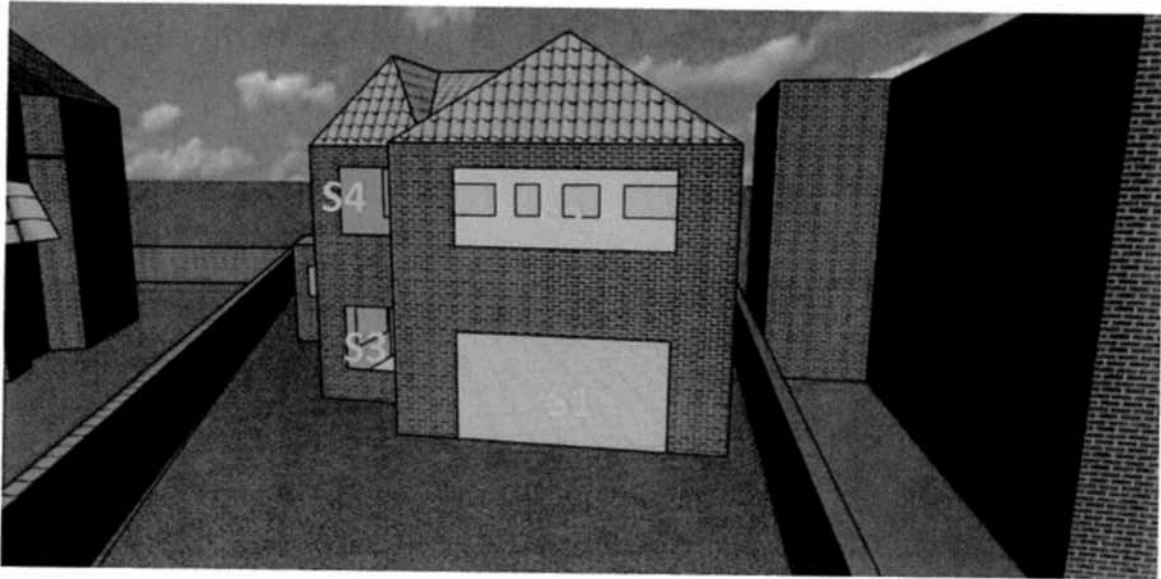
9.4. Site plan and location

9.4.1. Existing site layout

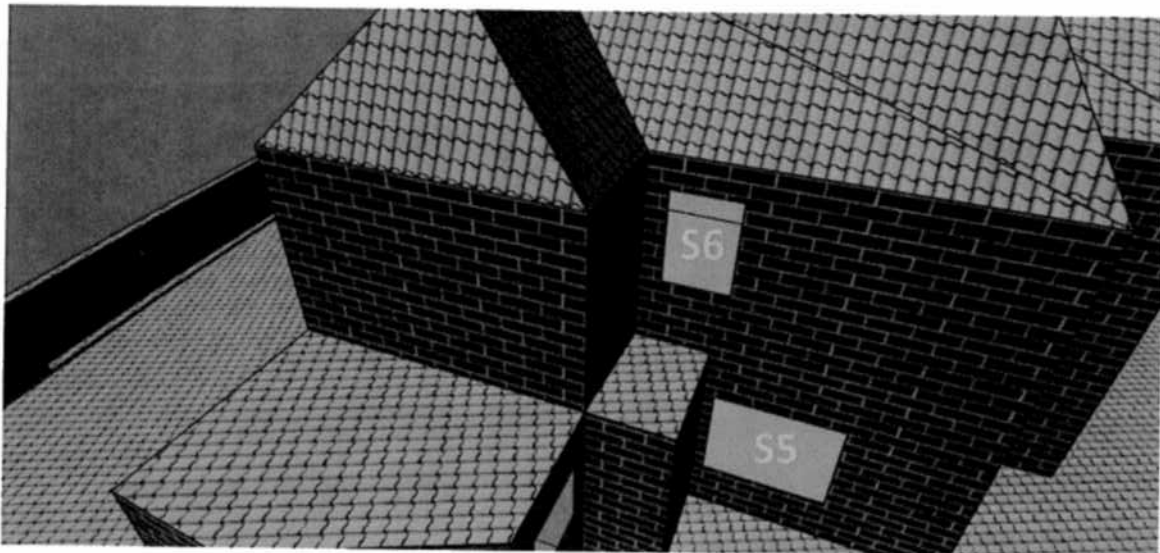


9.4.2. Proposed site layout

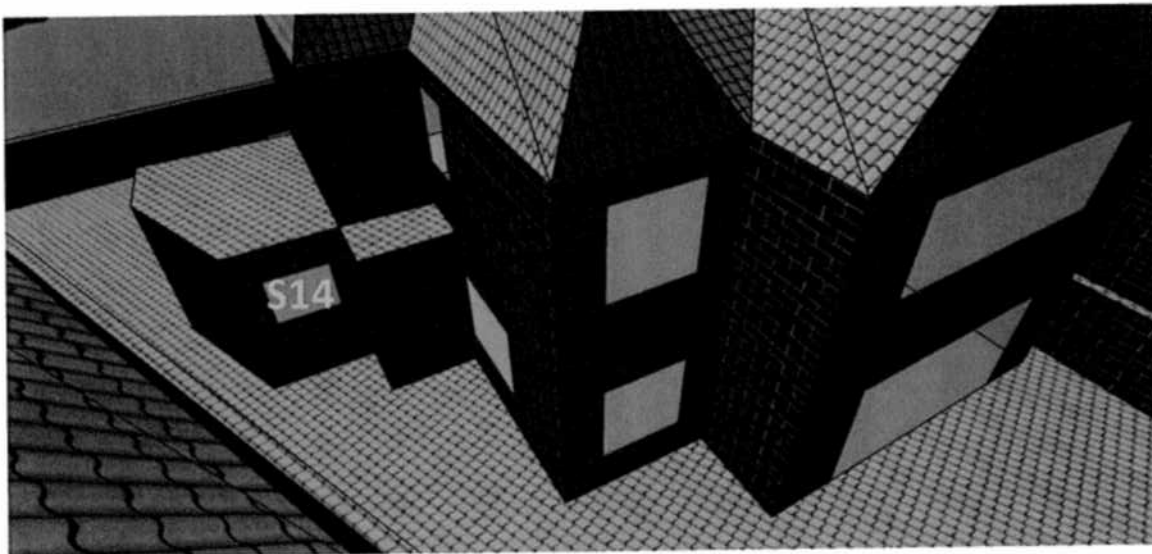




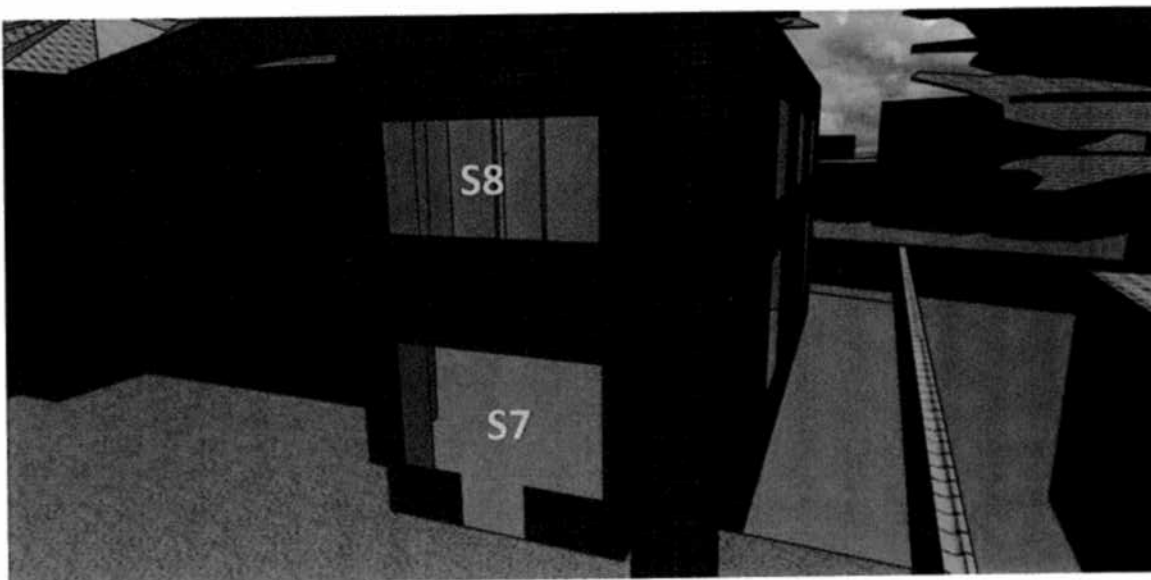
24 Lancaster Grove



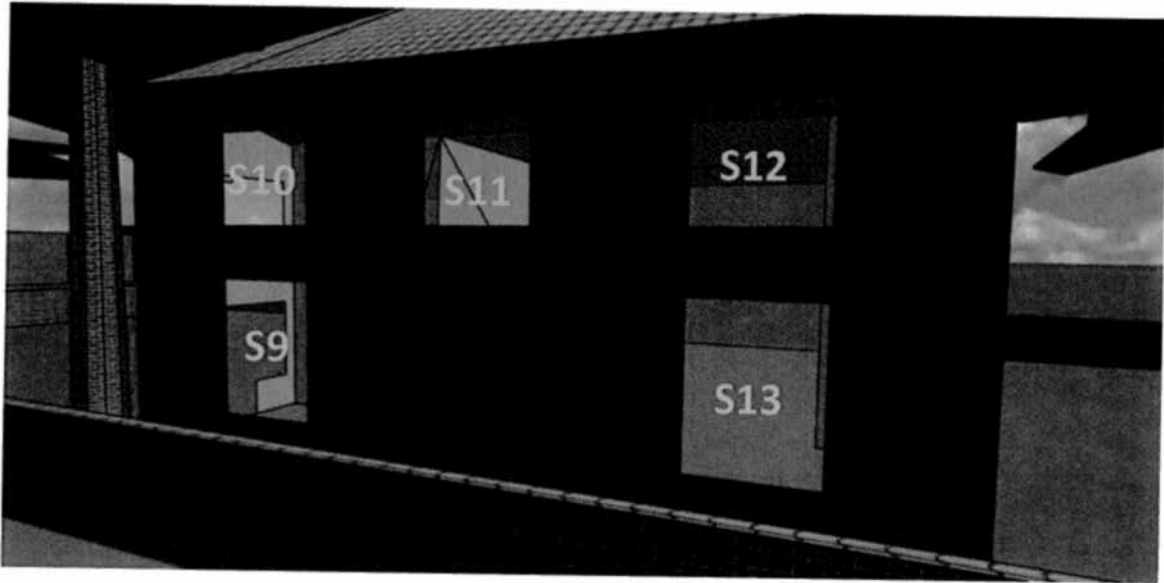
24 Lancaster Grove



24 Lancaster Grove



18-20 Lancaster Grove

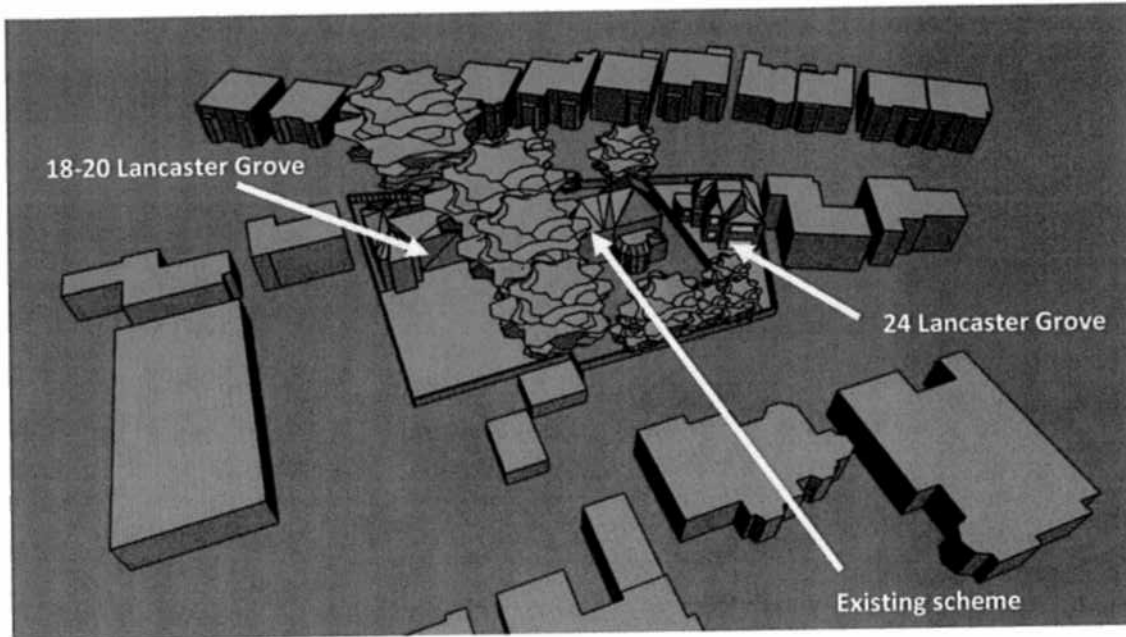


18-20 Lancaster Grove

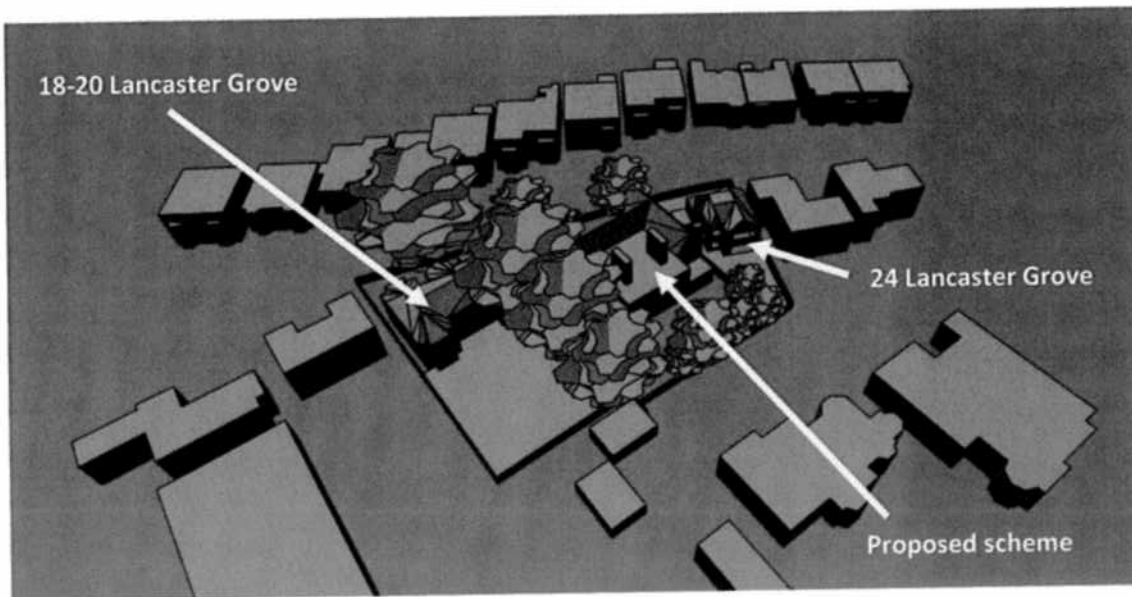
Location	
22 Lancaster Grove, London NW3 4PB	
Latitude (°)	51.54 N
Longitude (°)	0.16 W



9.5. Model images



Existing scheme

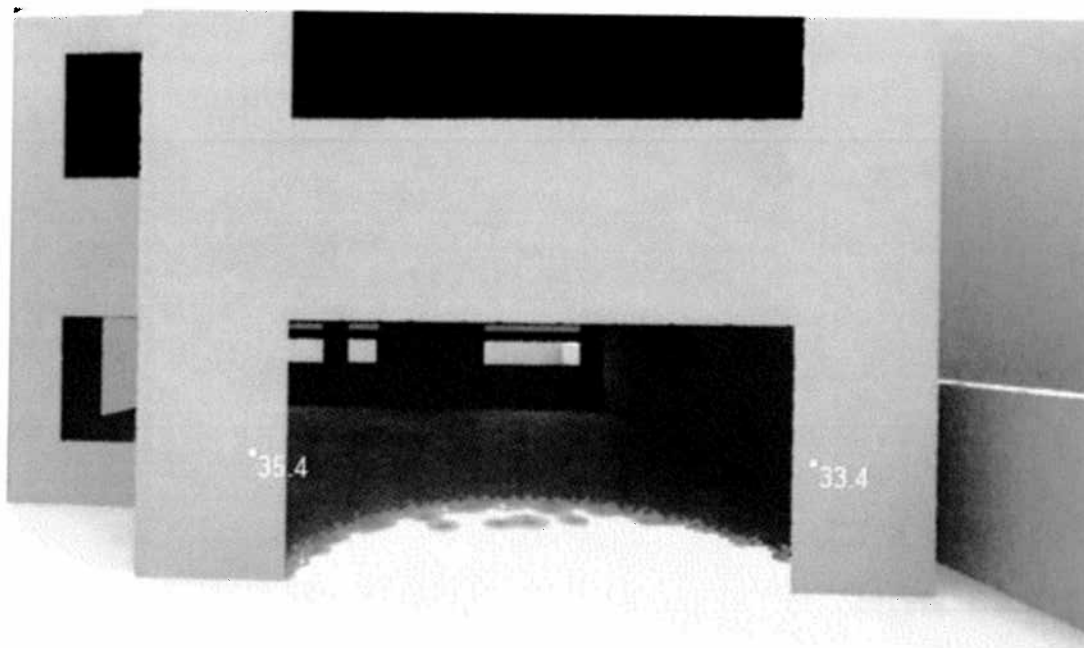


Proposed scheme

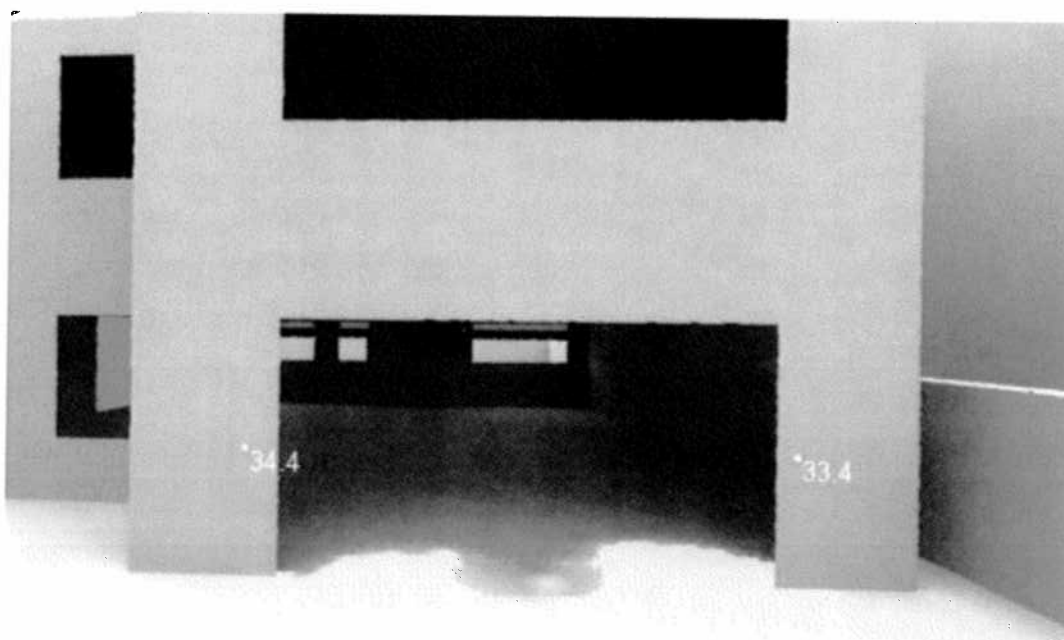


9.6. Daylight results

Surface 1 – 24 Lancaster Grove - GF



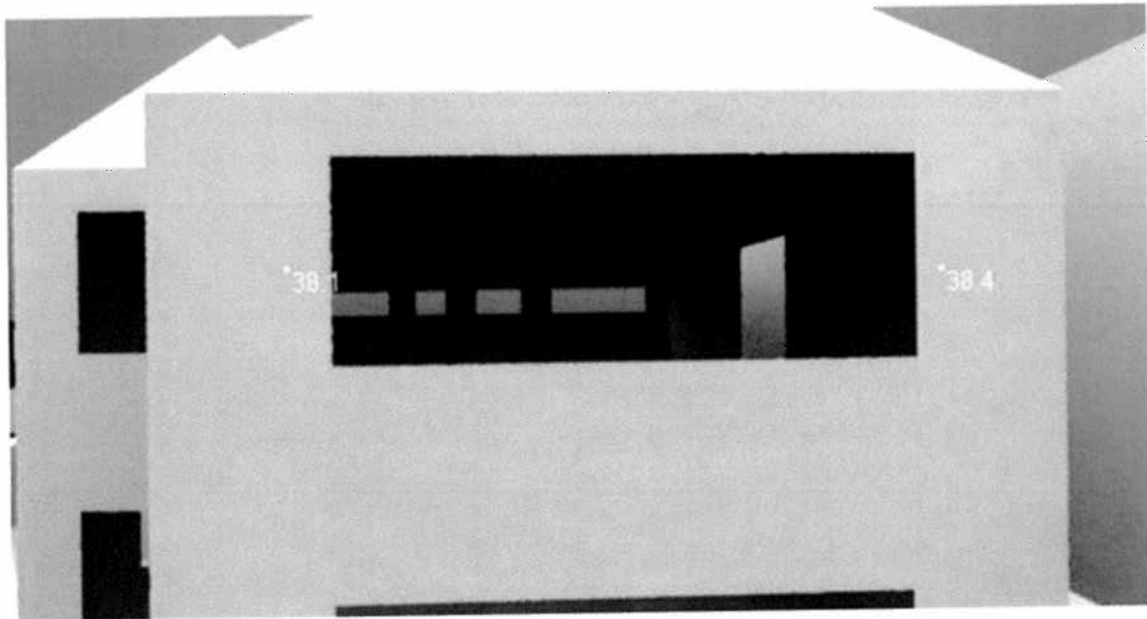
Existing Sample of VSC			Average
S1	35.4	33.4	34.40



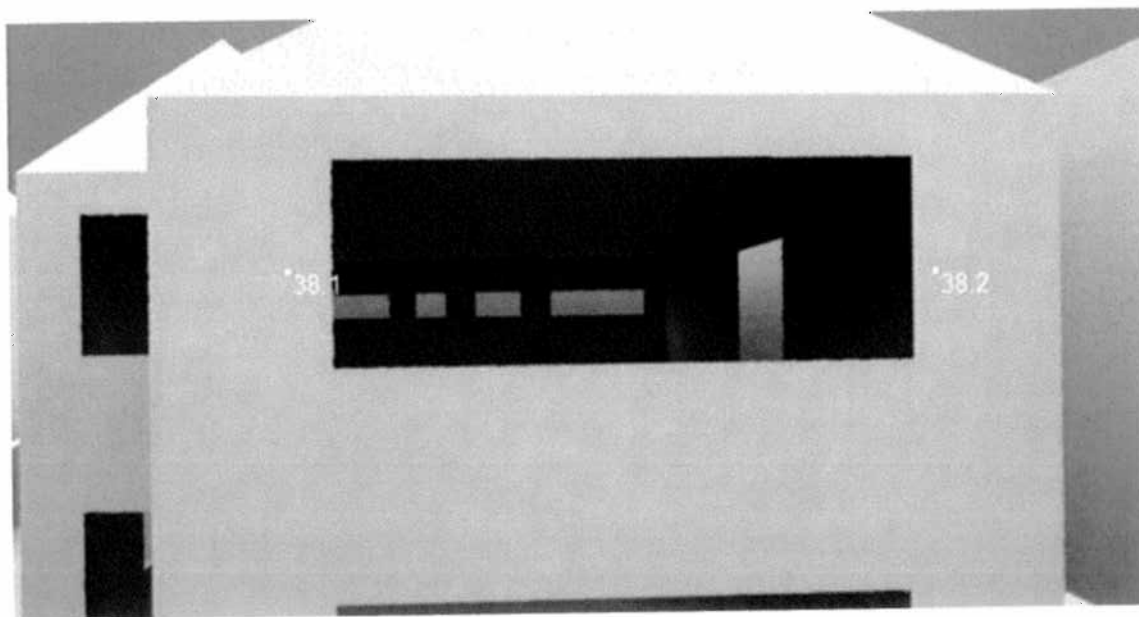
Proposed Sample of VSC			Average
S1	34.4	33.4	33.90



Surface 2 – 24 Lancaster Grove – FF



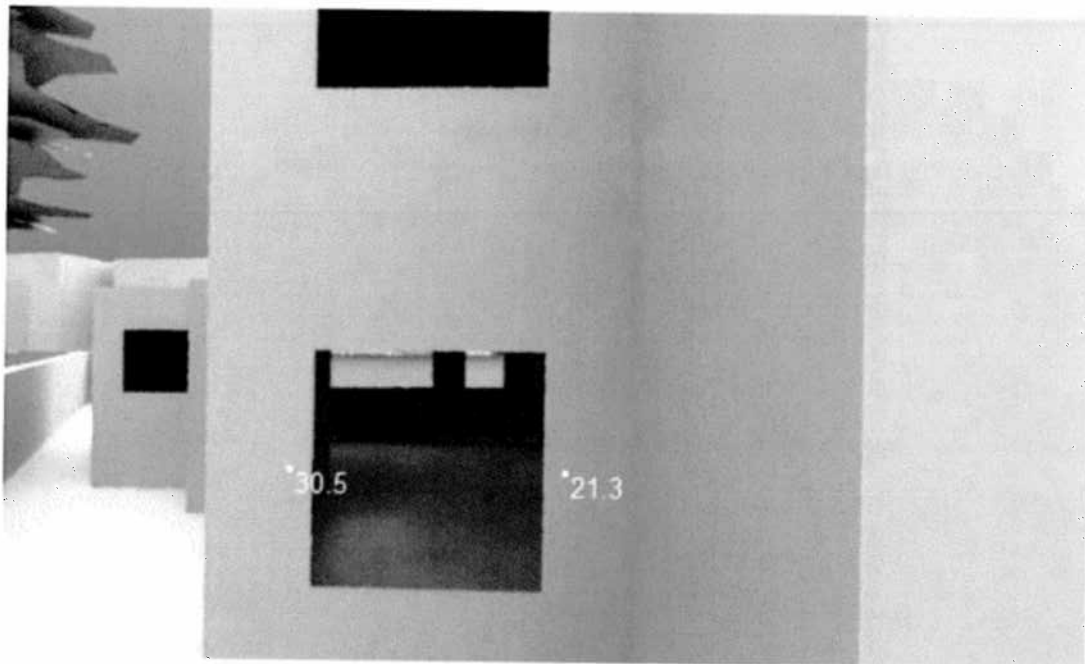
Existing Sample of VSC			Average
S2	38.1	38.4	38.25



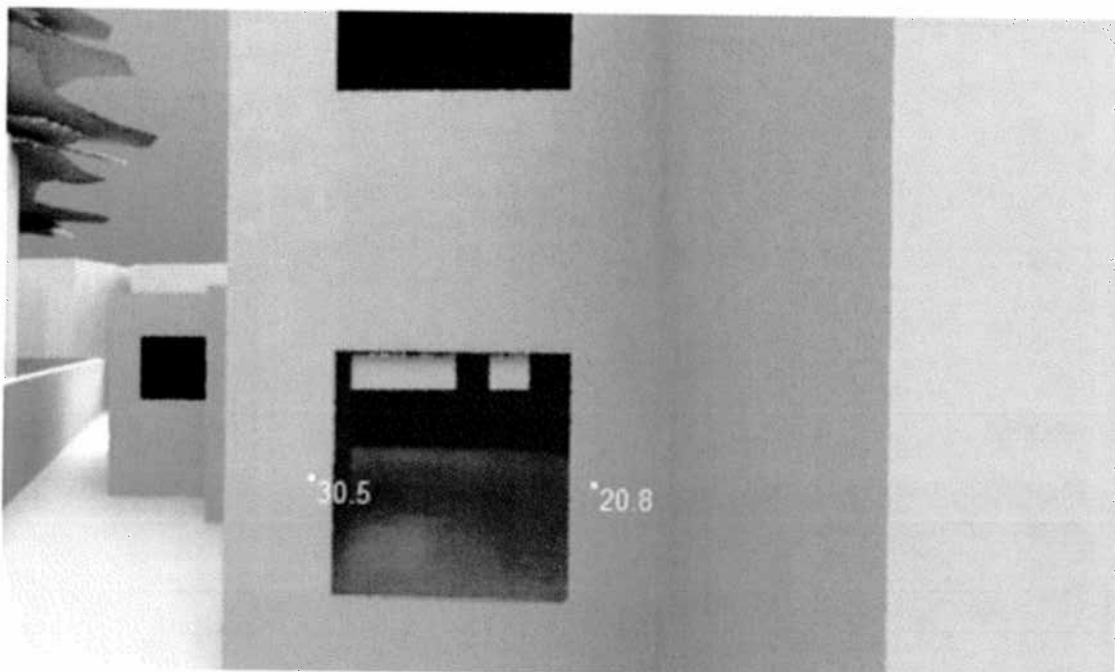
Proposed Sample of VSC			Average
S2	38.1	38.2	38.15



Surface 3 – 24 Lancaster Grove - GF



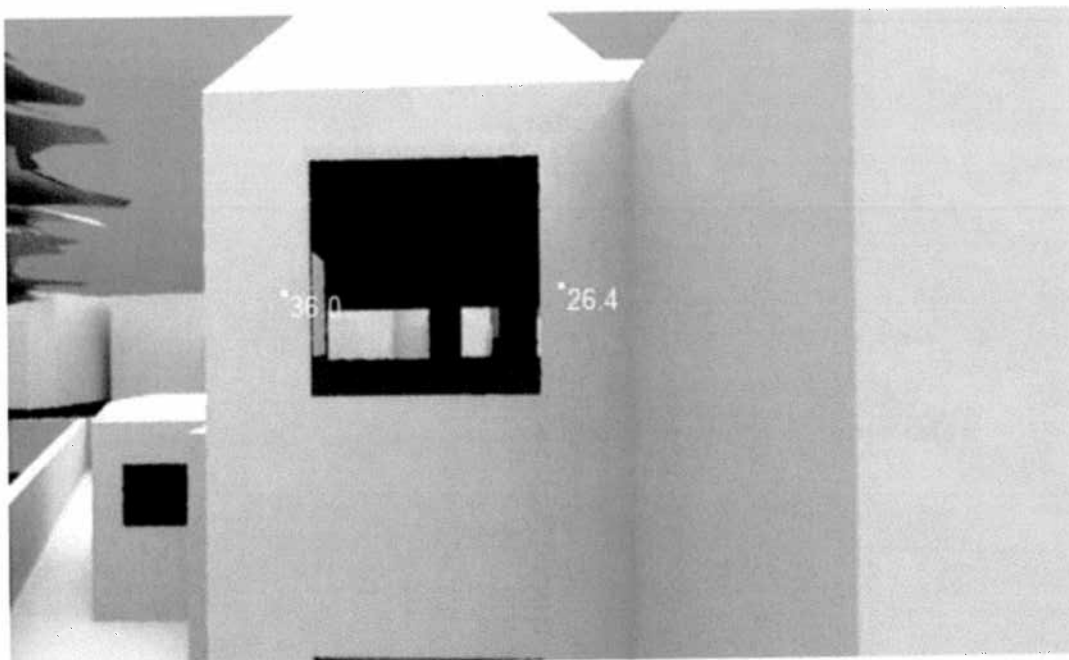
Existing Sample of VSC			
S3	30.5	21.3	Average 25.90



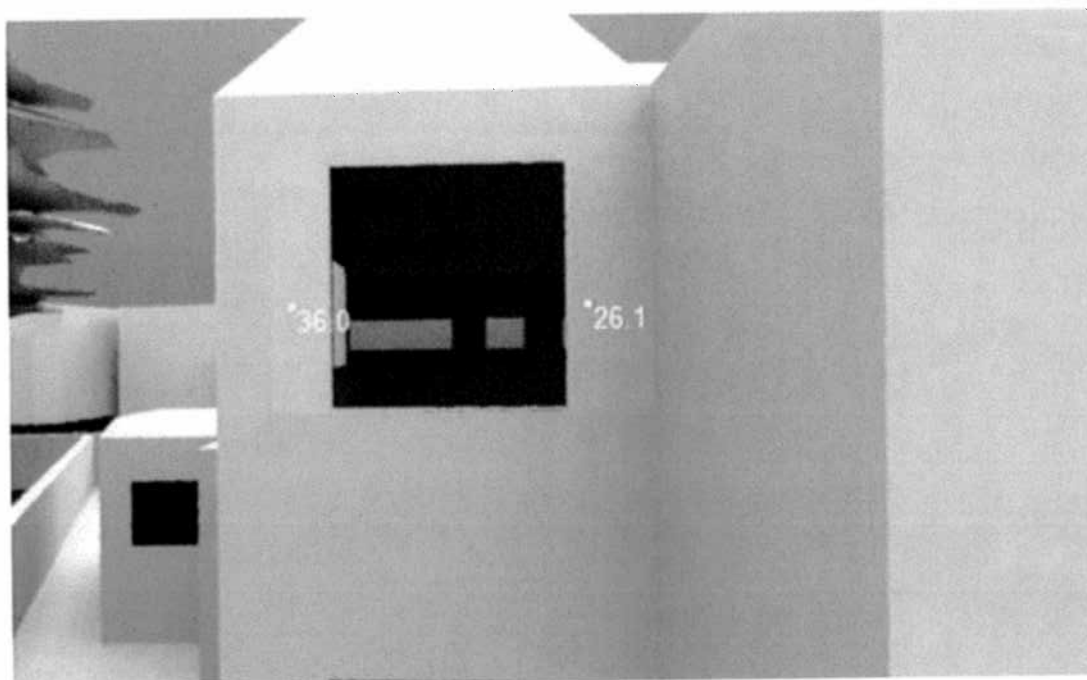
Proposed Sample of VSC			
S3	30.5	20.8	Average 25.65



Surface 4 – 24 Lancaster Grove - FF



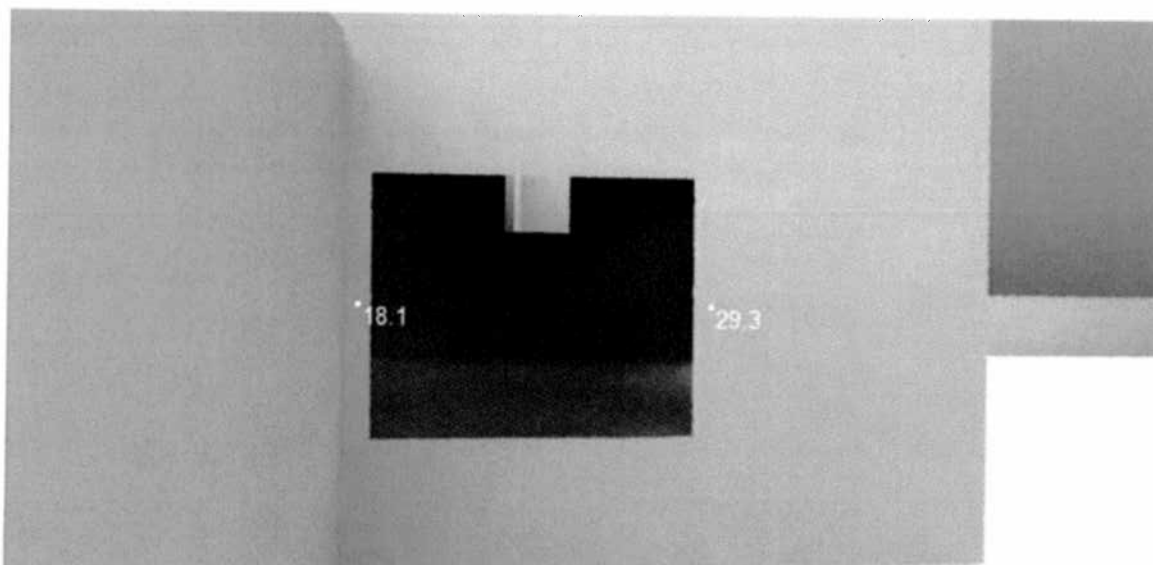
Existing Sample of VSC			Average
S4	36.0	26.4	31.20



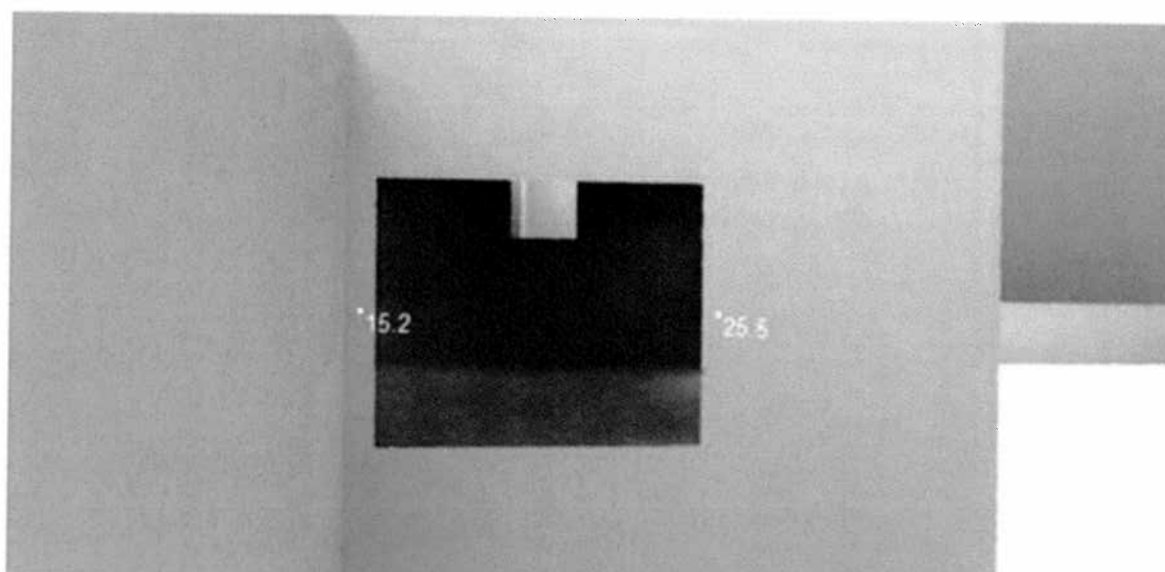
Proposed Sample of VSC			Average
S4	36.0	26.1	31.05



Surface 5 – 24 Lancaster Grove - GF



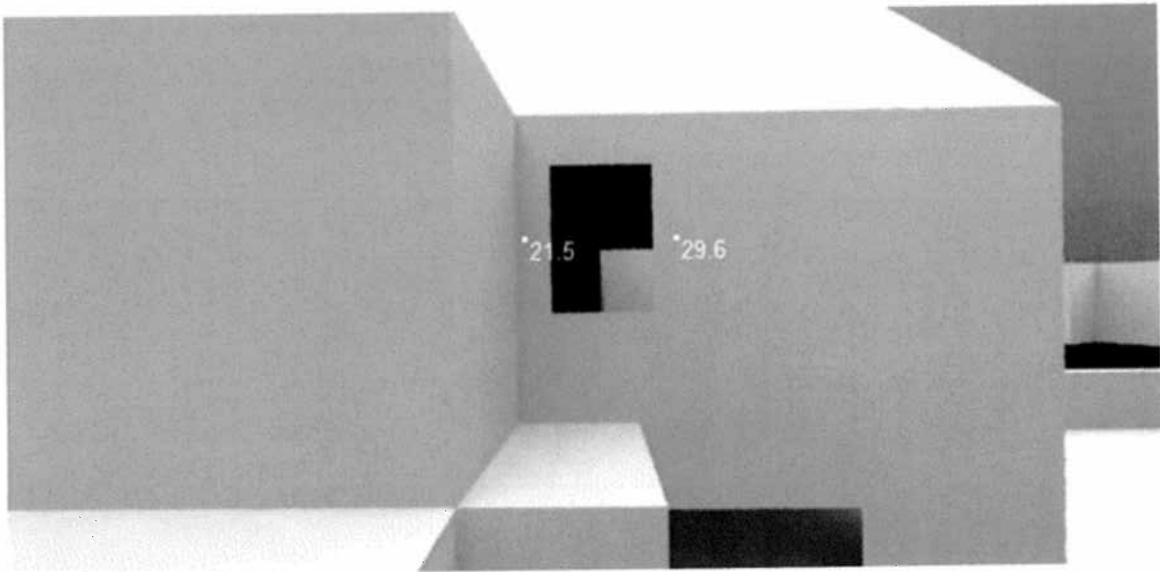
Existing Sample of VSC			
S5	18.1	29.3	Average 23.70



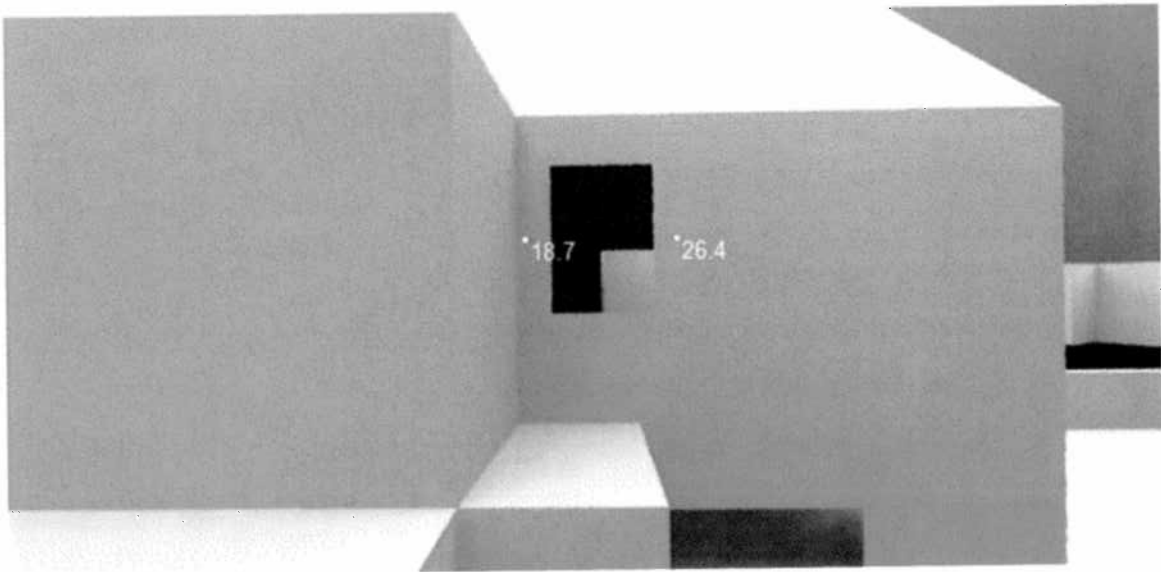
Proposed Sample of VSC			
S5	15.2	25.5	Average 20.35



Surface 6 – 24 Lancaster Grove - FF



Existing Sample of VSC			Average
S6	21.5	29.6	25.55

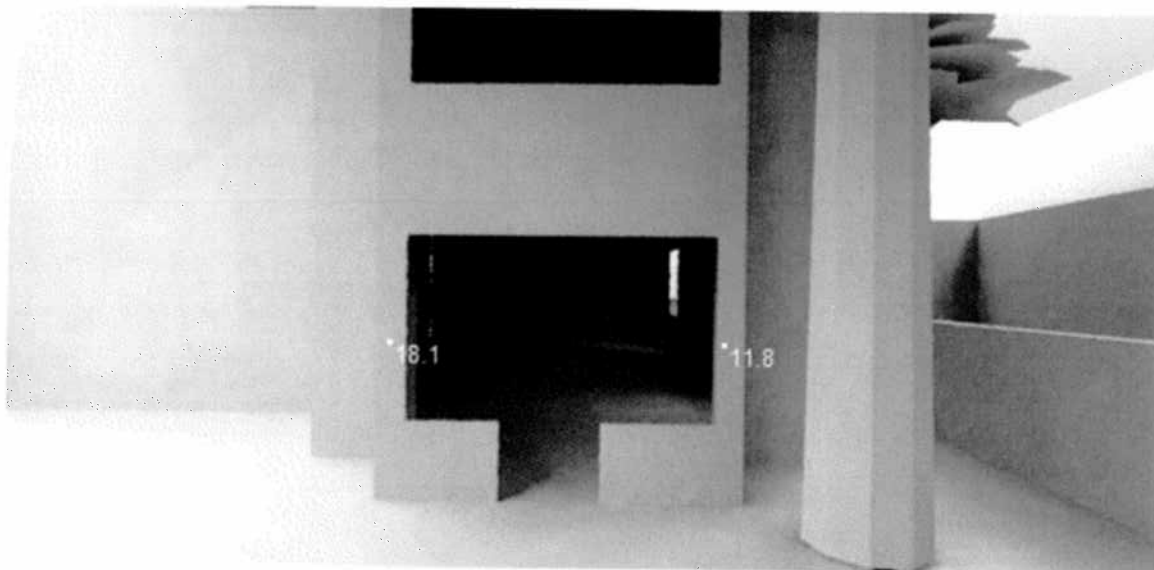


Proposed Sample of VSC			Average
S6	18.7	26.4	22.55

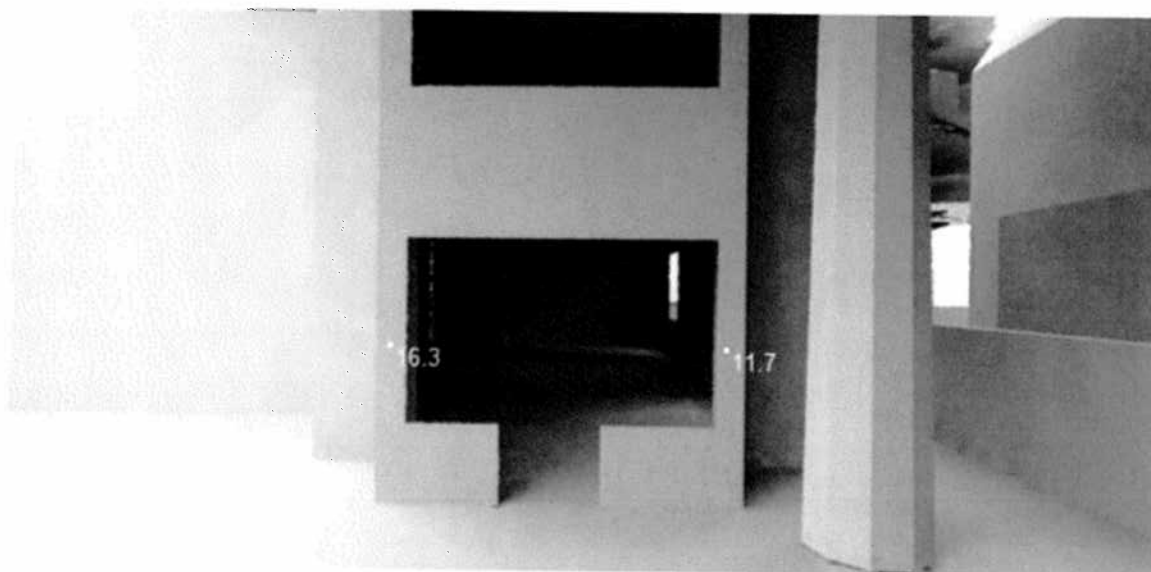




Surface 7 – 18/20 Lancaster Grove - GF



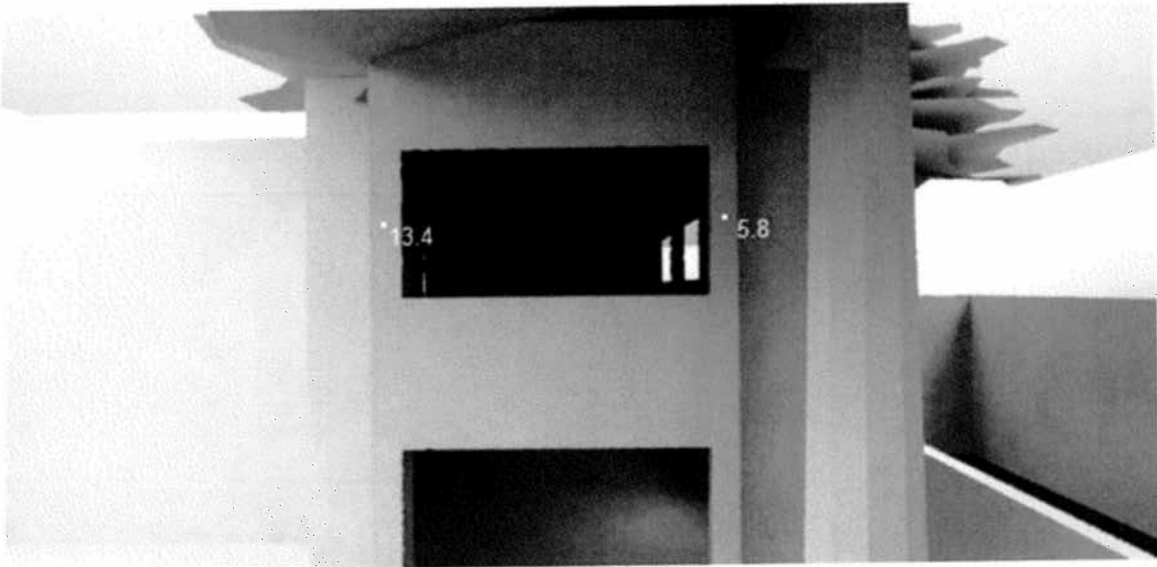
Existing Sample of VSC			
S7	18.1	11.8	Average
14.95			



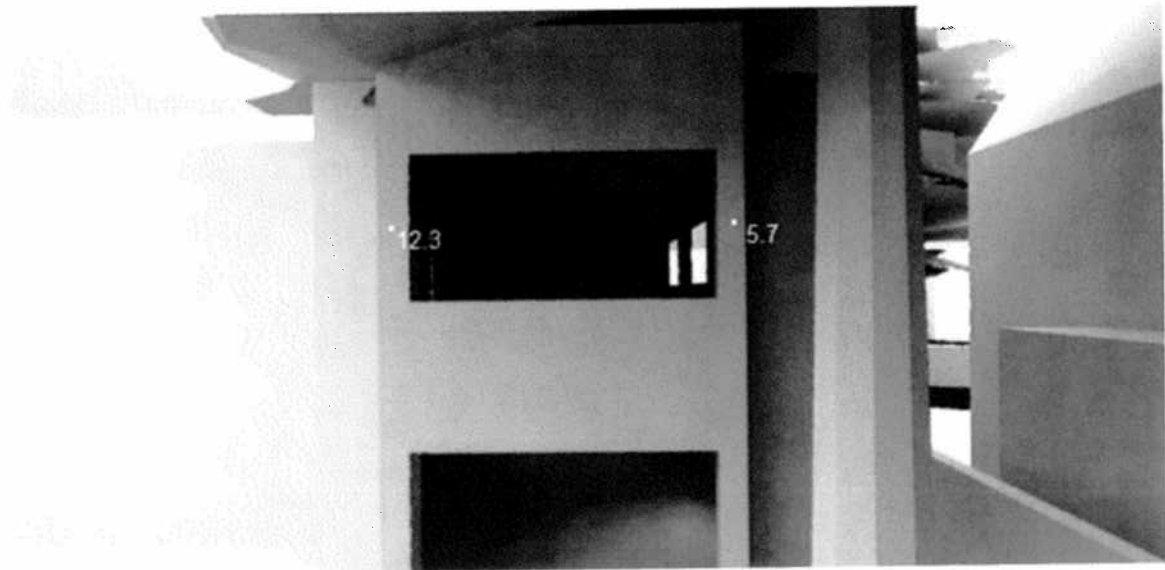
Proposed Sample of VSC			
S7	16.3	11.7	Average
14.00			



Surface 8 - 18/20 Lancaster Grove - FF



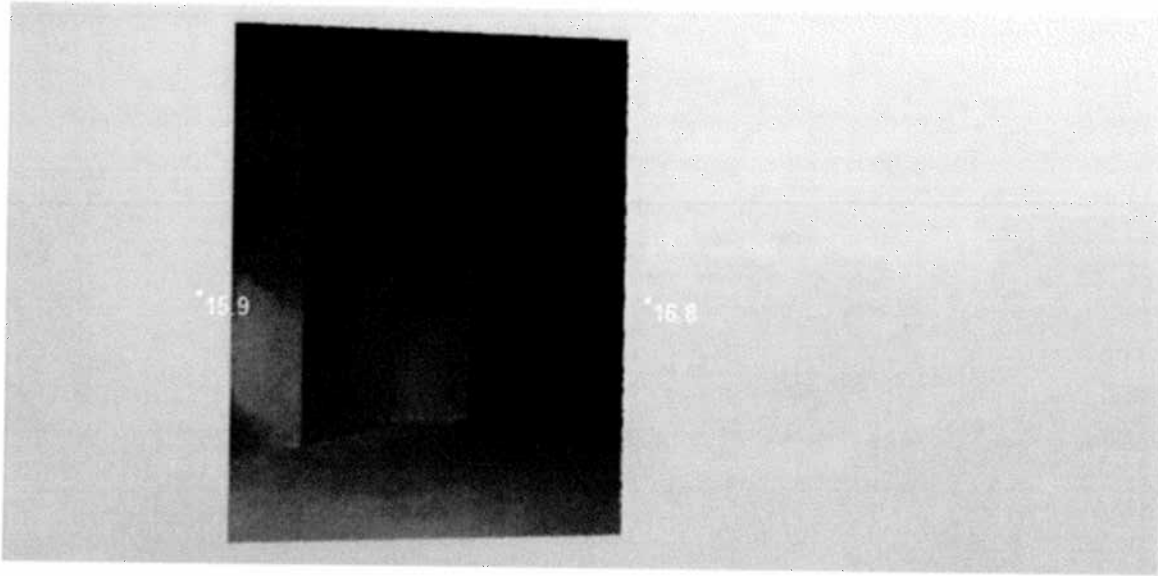
Existing Sample of VSC			Average
S8	13.4	5.8	9.60



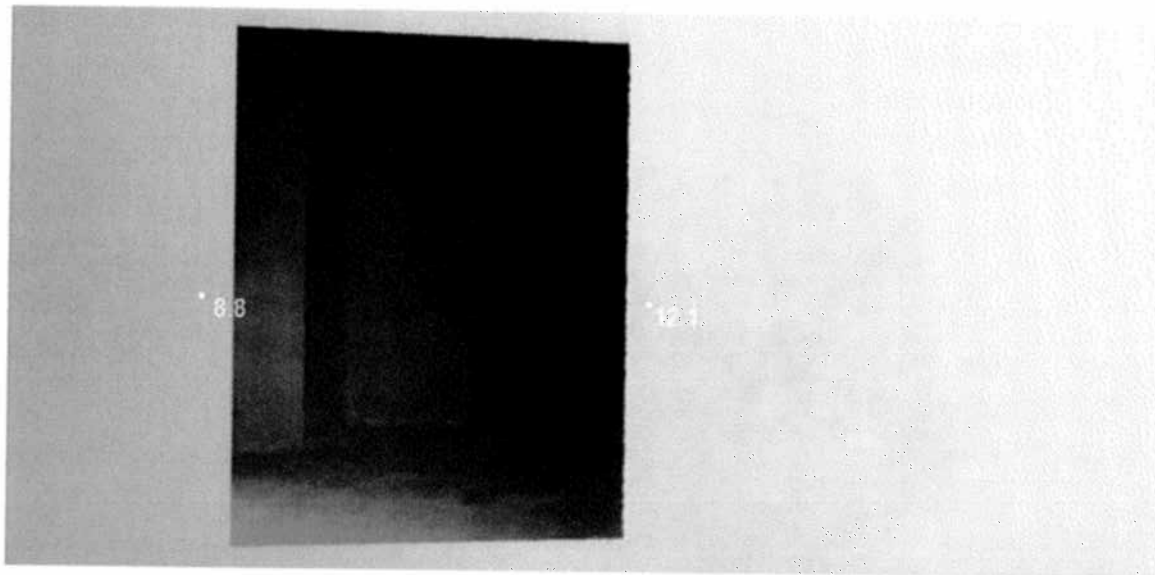
Proposed Sample of VSC			Average
S8	12.3	5.7	9.00



Surface 9 – 18/20 Lancaster Grove - GF



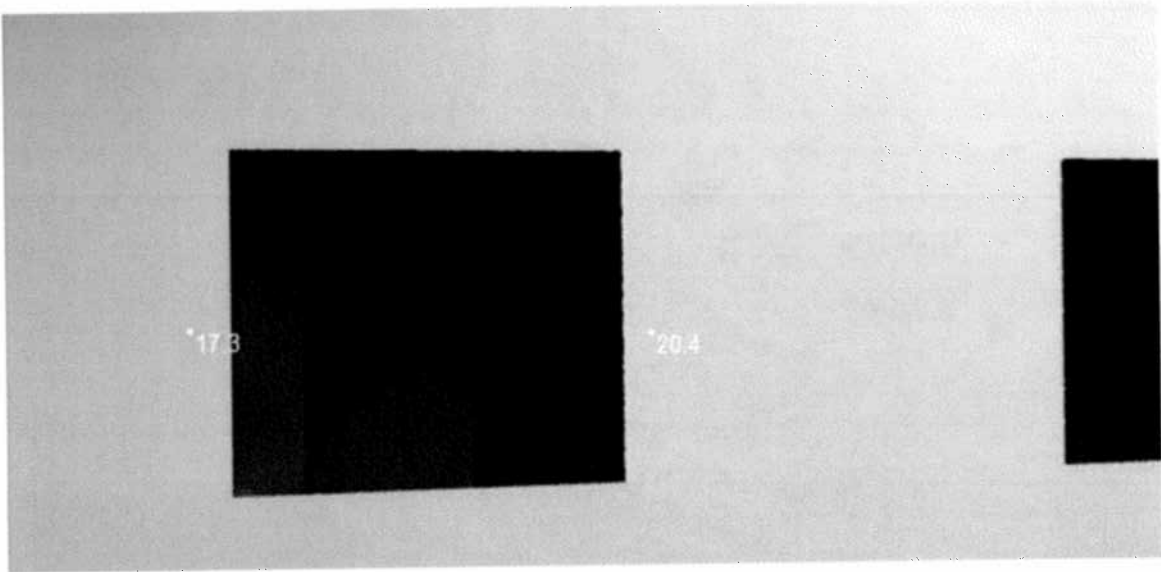
Existing Sample of VSC			
S9	15.9	16.8	Average 16.35



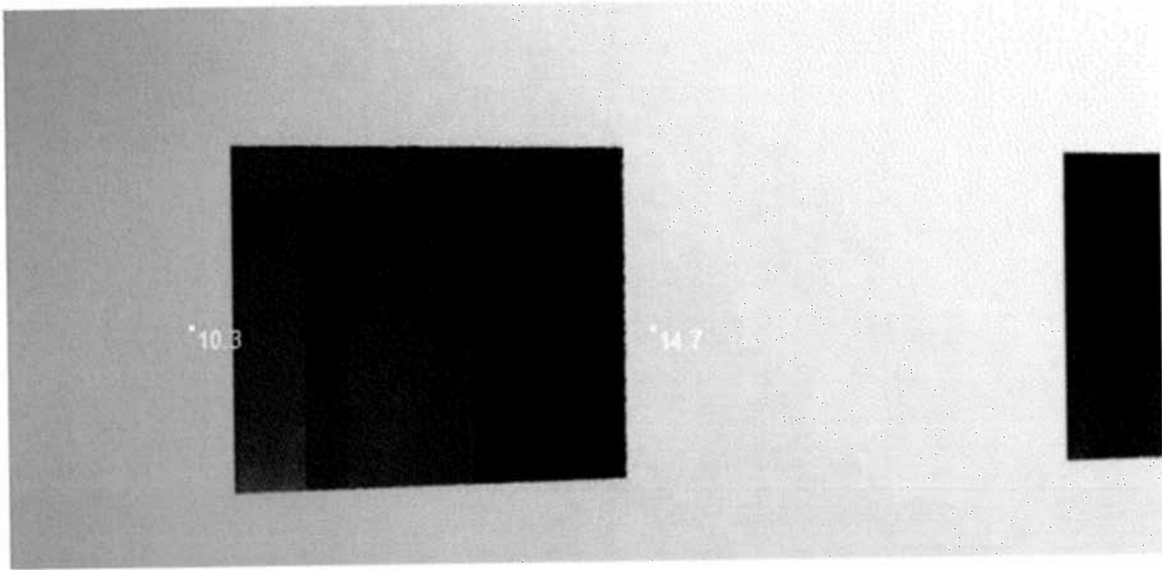
Proposed Sample of VSC			
S9	8.8	12.1	Average 10.45



Surface 10 – 18/20 Lancaster Grove - FF



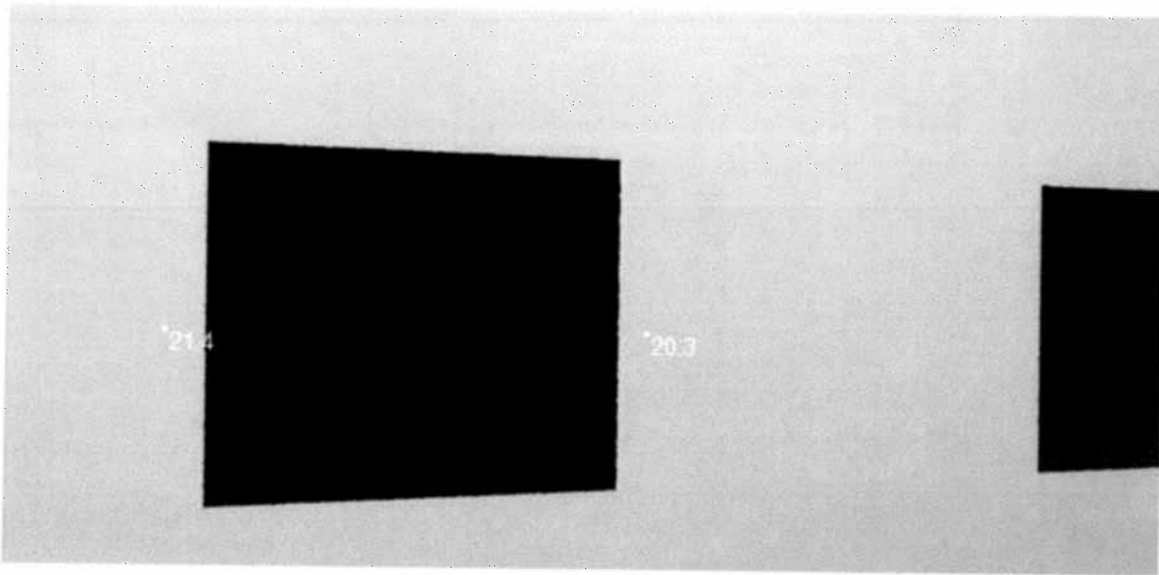
Existing Sample of VSC		Average
S10	17.3	20.4
		18.85



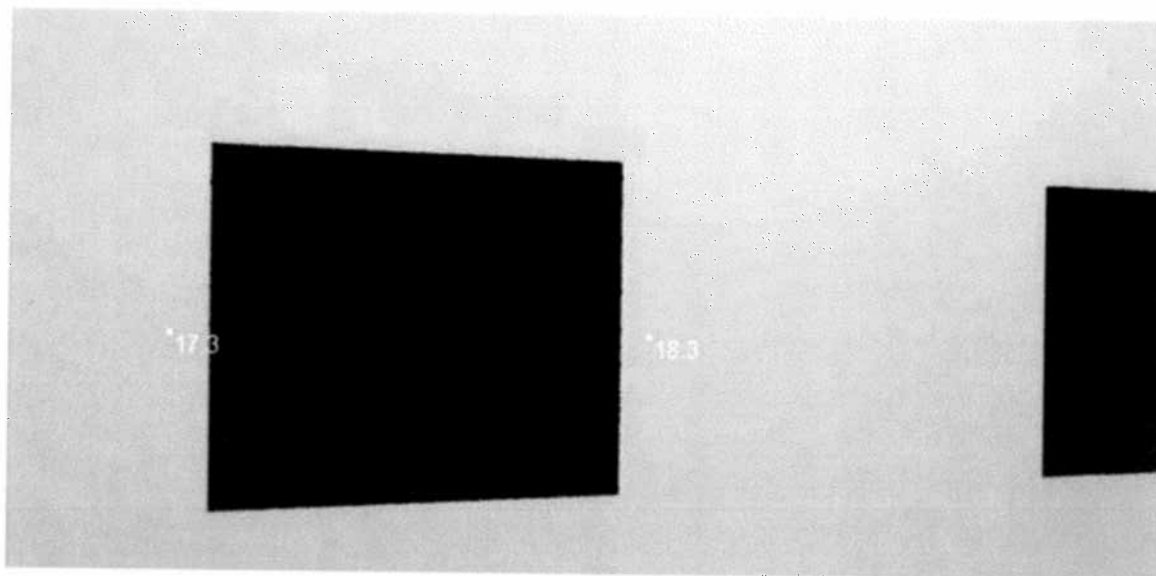
Proposed Sample of VSC		Average
S10	10.3	14.7
		12.50



Surface 11 – 18/20 Lancaster Grove - FF



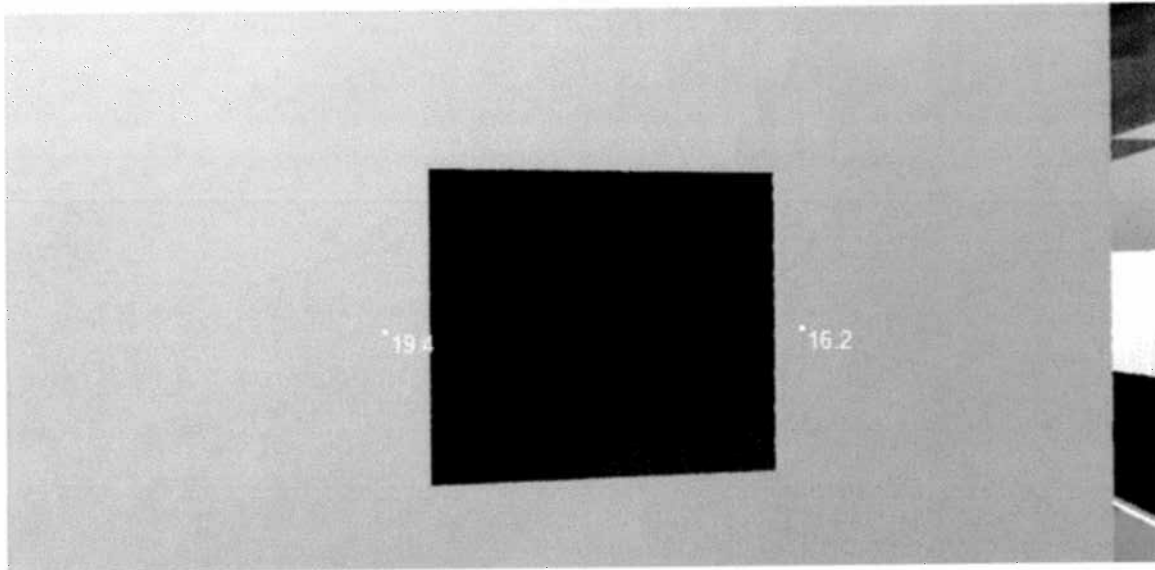
Existing Sample of VSC			
S11	21.4	20.3	Average 20.85



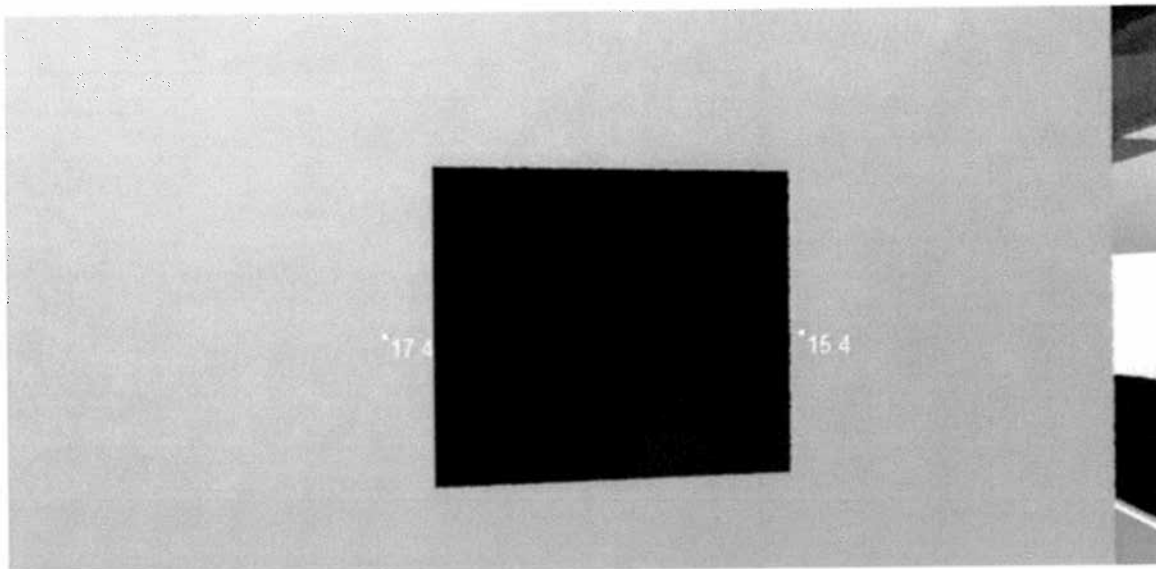
Proposed Sample of VSC			
S11	17.3	18.3	Average 17.80



Surface 12 – 18/20 Lancaster Grove - FF



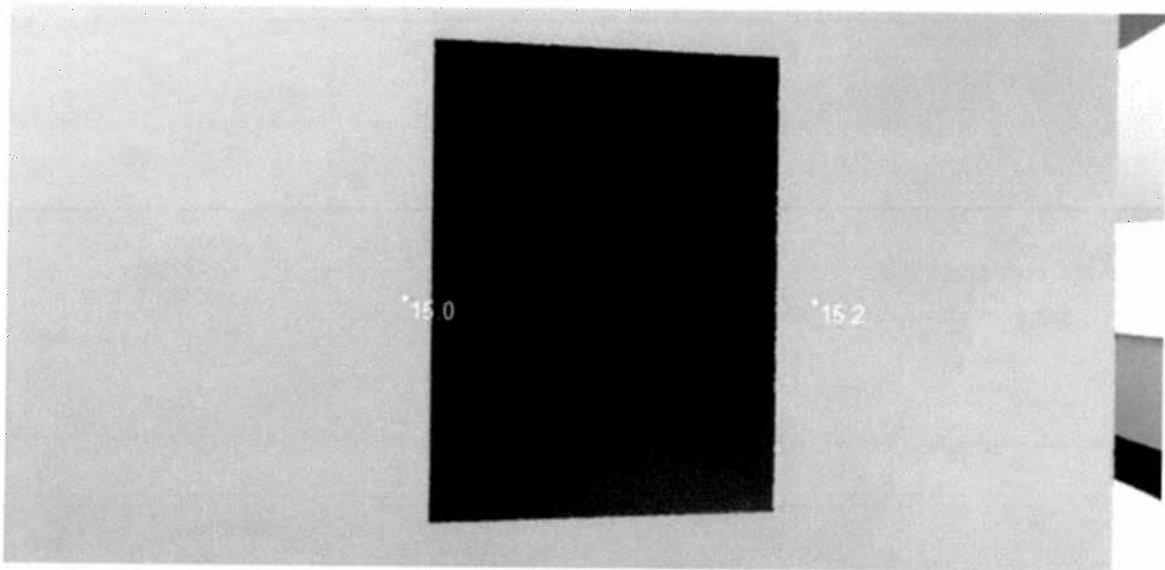
Existing Sample of VSC			
S12		Average	
	19.4	16.2	17.80



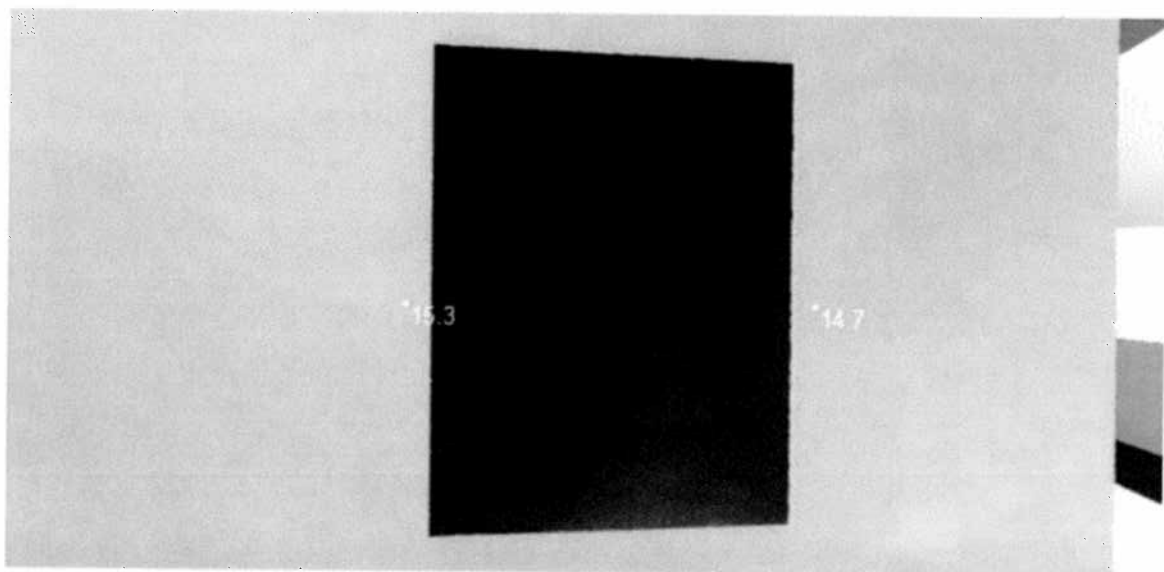
Proposed Sample of VSC			
S12		Average	
	17.4	15.4	16.40



Surface 13 – 18/20 Lancaster Grove - GF



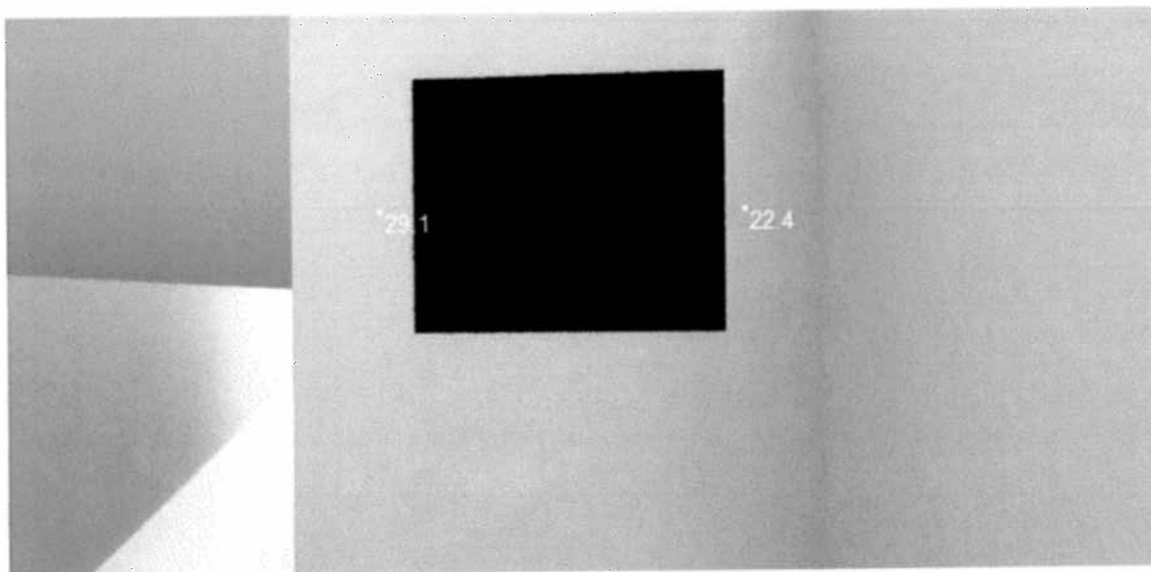
Existing Sample of VSC			
S13	15	15.2	Average 15.10



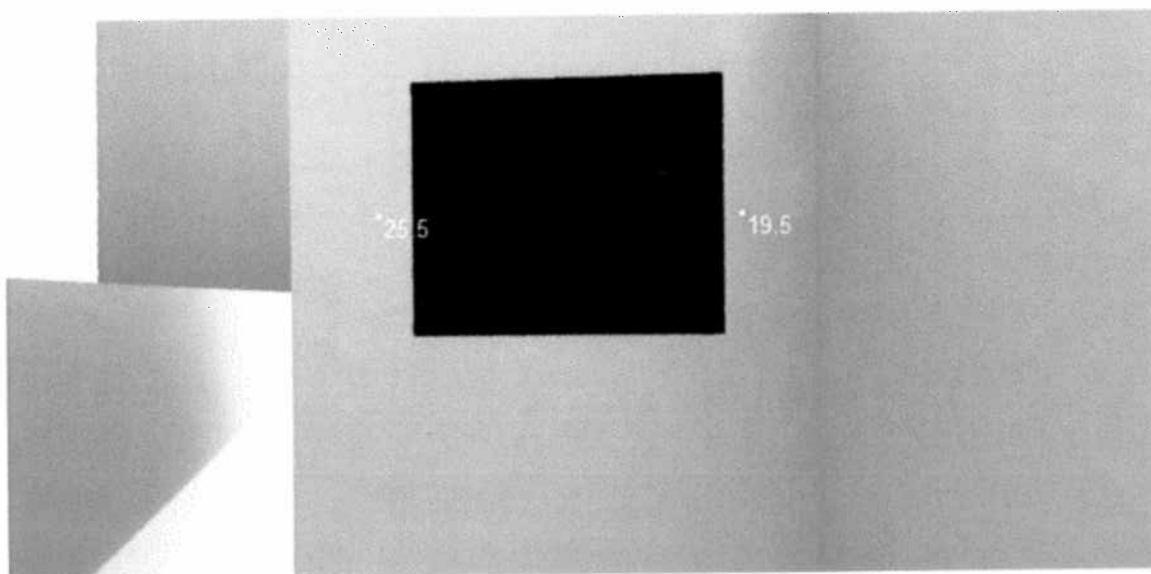
Proposed Sample of VSC			
S13	15.3	14.7	Average 15.00



Surface 14 – 24 Lancaster Grove - GF



Existing		Sample of VSC		Average
S14	29.1	22.4		25.75



Proposed		Sample of VSC		Average
S14	25.5	19.5		22.50



9.7. Sunlight results

Surface 1 – 24 Lancaster Grove - GF

The results are expressed as a percentage of area receiving direct sunlight on the 21st of each month.

Existing

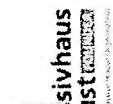
Month	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
Jan						35.30	79.20	96.50	100.00	52.90	0.00	0.20	19.60				
Feb					0.00	31.20	93.50	99.90	100.00	71.30	0.80	0.00	12.60	38.20			
Mar			0.00	0.00	0.00	0.00	96.50	100.00	100.00	99.20	69.50	94.40	0.00	4.40	0.00		
Apr		0.00	0.00	0.00	0.00	17.30	86.70	100.00	100.00	100.00	100.00	100.00	24.40	0.00	0.00	0.00	
May		0.00	0.00	0.00	0.00	57.10	98.90	100.00	100.00	100.00	100.00	100.00	100.00	0.00	0.00	0.00	
Jun	0.00	0.00	0.00	0.00	0.00	65.50	99.80	100.00	100.00	100.00	100.00	100.00	100.00	0.00	0.00	0.00	0.00
Jul		0.00	0.00	0.00	0.00	49.10	96.30	100.00	100.00	100.00	100.00	100.00	100.00	0.00	0.00	0.00	
Aug			0.00	0.00	0.00	14.70	82.30	100.00	100.00	100.00	100.00	100.00	100.00	0.00	0.00	0.00	
Sep			0.00	0.00	0.00	29.60	99.90	100.00	100.00	98.40	28.40	0.00	0.40				
Oct			0.00	0.00	0.00	71.90	97.60	100.00	100.00	94.10	74.30	94.70	0.00	0.00			
Nov					5.60	56.70	87.80	99.30	99.30	10.10	0.00	0.00					
Dec						39.10	73.00	95.30	100.00	34.50	0.00	3.50					



Proposed

Month	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
Jan						35.30	79.20	96.50	100.00	52.90	0.00	0.20	19.60				
Feb					0.00	31.20	93.50	99.90	100.00	71.30	0.80	0.00	12.60	19.10			
Mar				0.00	0.00	0.00	96.50	100.00	100.00	99.20	69.50	94.40	0.00	0.00	0.00		
Apr			0.00	0.00	0.00	17.30	86.70	100.00	100.00	100.00	100.00	100.00	24.40	0.00	0.00	0.00	
May		0.00	0.00	0.00	0.00	57.10	98.90	100.00	100.00	100.00	100.00	100.00	100.00	0.00	0.00	0.00	
Jun	0.00	0.00	0.00	0.00	0.00	65.50	99.80	100.00	100.00	100.00	100.00	100.00	100.00	0.00	0.00	0.00	0.00
Jul		0.00	0.00	0.00	0.00	49.10	96.30	100.00	100.00	100.00	100.00	100.00	100.00	0.00	0.00	0.00	
Aug			0.00	0.00	0.00	14.70	82.30	100.00	100.00	100.00	100.00	100.00	100.00	0.00	0.00	0.00	
Sep			0.00	0.00	0.00	29.60	99.90	100.00	100.00	94.10	74.30	94.70	0.00	0.00	0.00	0.00	
Oct				0.00	0.00	71.90	97.60	100.00	98.40	28.40	0.00	0.00	0.40				
Nov					5.60	56.70	87.80	99.30	99.30	10.10	0.00	0.00					
Dec						39.10	73.00	95.30	100.00	34.50	0.00	3.50					

Sunlight assessment										Winter months APSH (%)							
Total APSH (%)										Existing		Ratio		Existing		Proposed	
Existing										46.68		0.99		45.38		44.96	



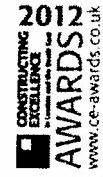


Surface 2 – 24 Lancaster Grove - FF

The results are expressed as a percentage of area receiving direct sunlight on the 21st of each month.

Existing

Month	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
Jan						66.10	100.00	100.00	100.00	95.40	24.90	6.10	31.50				
Feb					0.00	33.40	100.00	100.00	100.00	100.00	100.00	32.90	11.80	75.10			
Mar			0.00	0.00	6.10	73.30	100.00	100.00	100.00	100.00	100.00	100.00	39.30	0.00	64.00		
Apr			0.00	0.00	78.80	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	0.00	0.00	0.00	
May		0.00	0.00	0.00	0.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	0.00	0.00	0.00	
Jun	0.00	0.00	0.00	0.00	0.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	93.30	0.00	0.00	0.00
Jul		0.00	0.00	0.00	0.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	13.00	28.90	0.00	
Aug			0.00	0.00	76.40	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	0.00	0.00	0.00	
Sep			0.00	0.00	20.40	86.90	100.00	100.00	100.00	100.00	100.00	100.00	100.00	0.00	0.00	0.00	
Oct				0.00	0.00	77.40	100.00	100.00	100.00	100.00	100.00	100.00	18.40	0.80			
Nov					15.80	92.70	100.00	100.00	100.00	75.20	2.50	0.80					
Dec						87.00	100.00	100.00	100.00	78.10	0.50	0.30					





Proposed

Month	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
Jan						66.10	100.00	100.00	100.00	95.40	21.90	6.10	31.50				
Feb					0.00	33.40	100.00	100.00	100.00	100.00	100.00	32.90	11.80	52.90			
Mar				0.00	6.10	73.30	100.00	100.00	100.00	100.00	100.00	100.00	39.30	0.00	0.00		
Apr			0.00	0.00	78.80	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	0.00	0.00	0.00	
May		0.00	0.00	0.00	0.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	0.00	0.00	0.00	
Jun	0.00	0.00	0.00	0.00	0.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	93.30	0.00	0.00	0.00
Jul		0.00	0.00	0.00	0.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	13.00	1.40	0.00	
Aug			0.00	0.00	76.40	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	0.00	0.00	0.00	
Sep			0.00	0.00	20.40	86.90	100.00	100.00	100.00	100.00	100.00	100.00	100.00	18.40	0.80		
Oct				0.00	0.00	77.40	100.00	100.00	100.00	100.00	96.60	9.90	0.00				
Nov					15.80	92.70	100.00	100.00	100.00	75.20	2.50	0.80					
Dec						87.00	100.00	100.00	100.00	78.10	0.20	0.30					

Sunlight assessment									
Total APSH (%)					Winter months APSH (%)				
Existing		Proposed		Ratio		Existing		Proposed	
59.95		59.13		0.99		63.58		61.95	



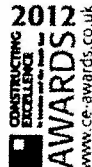
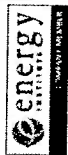


Surface 3 – 24 Lancaster Grove - GF

The results are expressed as a percentage of area receiving direct sunlight on the 21st of each month.

Existing

Month	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
Jan						0.00	15.60	65.80	23.00	0.00	0.00	0.00	50.90				
Feb					0.00	0.00	0.00	57.30	89.20	14.50	20.60	6.00	0.00	6.40			
Mar			0.00	0.00	0.00	0.00	0.00	53.80	100.00	100.00	100.00	100.00	0.00	0.00	0.00		
Apr		0.00	0.00	0.00	0.00	0.00	0.00	50.90	100.00	100.00	100.00	100.00	0.00	0.00	0.00	0.00	
May		0.00	0.00	0.00	0.00	0.00	0.00	41.10	100.00	100.00	100.00	100.00	100.00	0.00	0.00	0.00	
Jun	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28.50	100.00	100.00	100.00	100.00	100.00	0.00	0.00	0.00	0.00
Jul		0.00	0.00	0.00	0.00	0.00	0.00	25.70	100.00	100.00	100.00	100.00	100.00	0.00	0.00	0.00	
Aug			0.00	0.00	0.00	0.00	0.00	46.00	100.00	100.00	100.00	100.00	100.00	0.00	0.00	0.00	
Sep			0.00	0.00	0.00	0.00	2.50	68.50	100.00	100.00	100.00	100.00	0.00	0.00	0.00	0.00	
Oct			0.00	0.00	0.00	0.00	30.60	81.00	28.00	71.40	0.00	0.00	59.40				
Nov					0.00	0.00	38.50	82.60	0.00	0.00	0.00	39.30					
Dec						0.00	31.60	76.00	3.40	0.00	0.50	0.00					





Proposed

Month	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
Jan						0.00	15.60	65.80	23.00	0.00	0.00	0.00	10.90				
Feb					0.00	0.00	0.00	57.30	89.20	14.50	20.60	6.00	0.00	0.00			
Mar				0.00	0.00	0.00	0.00	53.80	100.00	100.00	100.00	100.00	0.00	0.00	0.00		
Apr			0.00	0.00	0.00	0.00	0.00	50.90	100.00	100.00	100.00	85.10	0.00	0.00	0.00	0.00	
May		0.00	0.00	0.00	0.00	0.00	0.00	41.10	100.00	100.00	100.00	100.00	3.80	0.00	0.00	0.00	
Jun	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28.50	100.00	100.00	100.00	100.00	47.60	0.00	0.00	0.00	0.00
Jul		0.00	0.00	0.00	0.00	0.00	0.00	25.70	100.00	100.00	100.00	100.00	20.70	0.00	0.00	0.00	
Aug			0.00	0.00	0.00	0.00	0.00	46.00	100.00	100.00	100.00	91.70	0.00	0.00	0.00	0.00	
Sep			0.00	0.00	0.00	0.00	2.50	68.50	100.00	100.00	100.00	58.90	0.00	0.00			
Oct				0.00	0.00	0.00	30.60	81.00	28.00	71.40	0.00	0.00	0.00				
Nov					0.00	0.00	38.50	61.40	0.00	0.00	0.00	21.50					
Dec						0.00	31.60	76.00	3.40	0.00	0.50	0.00					

Sunlight assessment										Winter months APSH (%)							
Total APSH (%)					Ratio					Existing				Proposed			
Existing		Proposed			Ratio		Existing			Existing		Existing		Proposed		Proposed	
30.05		27.26			0.91		24.46			24.46		21.83		21.83			



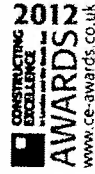


Surface 4 – 24 Lancaster Grove - FF

The results are expressed as a percentage of area receiving direct sunlight on the 21st of each month.

Existing

Month	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
Jan						0.00	16.10	66.90	100.00	74.00	38.60	0.00	48.50				
Feb					0.00	0.00	11.80	65.60	100.00	100.00	100.00	94.50	0.00	33.40			
Mar				0.00	0.00	4.90	36.50	75.60	100.00	100.00	100.00	100.00	0.30	2.10	0.00		
Apr			0.00	0.00	1.60	35.10	65.50	91.30	100.00	100.00	100.00	100.00	65.10	0.00	0.00	0.00	
May		0.00	0.00	0.00	0.00	52.30	78.60	97.00	100.00	100.00	100.00	100.00	100.00	0.00	0.00	0.00	
Jun	0.00	0.00	0.00	0.00	0.00	56.50	80.50	97.40	100.00	100.00	100.00	100.00	100.00	0.00	0.00	0.00	0.00
Jul		0.00	0.00	0.00	0.00	48.30	75.20	95.00	100.00	100.00	100.00	100.00	100.00	0.00	0.00	0.00	
Aug			0.00	0.00	0.80	33.80	63.90	90.10	100.00	100.00	100.00	100.00	93.20	0.00	0.00	0.00	
Sep				0.00	0.00	13.70	46.00	84.50	100.00	100.00	100.00	100.00	0.00	19.70			
Oct				0.00	0.00	1.40	41.50	85.50	100.00	100.00	97.20	0.00	32.00				
Nov					0.00	0.00	39.20	83.40	89.70	86.30	0.00	45.50					
Dec						0.00	31.60	76.10	78.30	19.90	5.80	8.30					

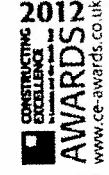




Proposed

Month	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
Jan						0.00	16.10	66.90	100.00	74.00	38.60	0.00	45.80				
Feb					0.00	0.00	11.80	65.60	100.00	100.00	100.00	94.50	0.00	0.00			
Mar				0.00	0.00	4.90	36.50	75.60	100.00	100.00	100.00	100.00	0.30	0.00	0.00		
Apr			0.00	0.00	1.60	35.10	65.50	91.30	100.00	100.00	100.00	100.00	65.10	0.00	0.00	0.00	
May		0.00	0.00	0.00	0.00	52.30	78.60	97.00	100.00	100.00	100.00	100.00	100.00	0.00	0.00	0.00	
Jun	0.00	0.00	0.00	0.00	0.00	56.50	80.50	97.40	100.00	100.00	100.00	100.00	100.00	0.00	0.00	0.00	0.00
Jul		0.00	0.00	0.00	0.00	48.30	75.20	95.00	100.00	100.00	100.00	100.00	100.00	0.00	0.20	0.00	
Aug			0.00	0.00	0.80	33.80	63.90	90.10	100.00	100.00	100.00	100.00	93.20	0.00	0.00	0.00	
Sep		0.00	0.00	0.00	0.00	13.70	46.00	84.50	100.00	100.00	100.00	100.00	0.00	0.00			
Oct				0.00	0.00	1.40	41.50	85.50	100.00	100.00	97.20	0.00	4.40				
Nov					0.00	0.00	39.20	83.40	89.70	86.30	0.00	45.50					
Dec						0.00	31.60	76.10	78.30	19.90	5.80	8.30					

Sunlight assessment										Winter months APSH (%)		
Total APSH (%)					Ratio		Existing			Proposed		
Existing												
45.60					0.99		43.46			42.27		





Surface 5 – 24 Lancaster Grove - GF

The results are expressed as a percentage of area receiving direct sunlight on the 21st of each month.

Existing

Month	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
Jan						0.00	0.00	0.00	0.00	0.00	0.00	37.70	24.20				
Feb					0.00	0.00	0.00	0.00	0.00	0.00	25.40	14.50	1.20	0.00			
Mar				0.00	0.00	0.00	0.00	0.00	0.00	100.00	100.00	100.00	0.00	0.00	0.00		
Apr			0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	100.00	100.00	12.10	0.00	0.00	0.00	
May		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	100.00	100.00	11.10	0.00	0.00	0.00	
Jun	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	100.00	100.00	100.00	0.00	0.00	0.00	32.00
Jul		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	100.00	100.00	98.60	0.00	0.00	0.00	
Aug			0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	100.00	100.00	30.60	0.00	0.00	0.00	
Sep			0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	100.00	99.90	0.00	0.00	0.00	0.00	
Oct				0.00	0.00	0.00	0.00	0.00	0.00	100.00	18.50	0.00	0.10				
Nov					0.00	0.00	0.00	0.00	0.00	13.20	0.00	69.10					
Dec						0.00	3.30	0.00	0.00	0.00	0.00	55.30					





Proposed

Month	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
Jan						0.00	0.00	0.00	0.00	0.00	0.00	12.90	0.00				
Feb					0.00	0.00	0.00	0.00	0.00	0.00	25.40	0.00	0.00	0.00			
Mar			0.00		0.00	0.00	0.00	0.00	0.00	100.00	100.00	0.00	0.00	0.00	0.00		
Apr			0.00		0.00	0.00	0.00	0.00	0.00	100.00	100.00	49.30	0.00	0.00	0.00	0.00	
May		0.00	0.00		0.00	0.00	0.00	0.00	0.00	100.00	100.00	100.00	0.60	0.00	0.00	0.00	
Jun	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	100.00	100.00	100.00	43.70	0.00	0.00	0.00	0.00
Jul		0.00	0.00		0.00	0.00	0.00	0.00	0.00	100.00	100.00	100.00	16.20	0.00	0.00	0.00	
Aug			0.00		0.00	0.00	0.00	0.00	0.00	100.00	100.00	63.90	0.00	0.00	0.00	0.00	0.00
Sep			0.00		0.00	0.00	0.00	0.00	0.00	100.00	99.20	0.00	0.00	0.00			
Oct					0.00	0.00	0.00	0.00	0.00	100.00	18.50	0.00	0.00				
Nov					0.00	0.00	0.00	36.30	0.00	13.20	0.00	0.00					
Dec						0.00	3.30	0.00	0.00	0.00	0.00	10.00					

Sunlight assessment										Winter months APSH (%)							
Total APSH (%)										Existing		Proposed		Ratio		Existing	
										19.34		14.74		0.76		12.05	
																7.63	





Surface 6 – 24 Lancaster Grove - FF

The results are expressed as a percentage of area receiving direct sunlight on the 21st of each month.

Existing

Month	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
Jan						0.00	0.00	0.00	0.00	0.00	0.00	58.10	37.00				
Feb					0.00	0.00	0.00	0.00	0.00	0.00	100.00	97.20	0.00	0.00			
Mar			0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	100.00	100.00	0.00	0.00	0.00		
Apr		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	100.00	100.00	76.00	0.00	0.00	0.00	
May		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	100.00	100.00	100.00	72.70	10.10	19.40	
Jun	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	100.00	100.00	100.00	100.00	82.00	77.10	59.70
Jul		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	100.00	100.00	100.00	100.00	16.30	15.80	
Aug			0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	100.00	100.00	100.00	100.00	0.00	0.00	
Sep			0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	100.00	100.00	100.00	0.00	0.00	0.00	
Oct				0.00	0.00	0.00	0.00	0.00	0.00	100.00	100.00	100.00	0.00	0.00			
Nov					0.00	0.00	0.00	0.00	0.00	100.00	100.00	0.00	5.60				
Dec						0.00	0.00	0.00	0.00	100.00	0.00	0.00					





Proposed

Month	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
Jan						0.00	0.00	0.00	0.00	0.00	0.00	4.70	0.00				
Feb					0.00	0.00	0.00	0.00	0.00	0.00	100.00	73.40	0.00	0.00			
Mar				0.00	0.00	0.00	0.00	0.00	0.00	100.00	100.00	100.00	0.00	0.00	0.00		
Apr			0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	100.00	100.00	76.00	0.00	0.00	0.00	
May		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	100.00	100.00	100.00	72.70	0.00	0.00	
Jun	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	100.00	100.00	100.00	100.00	22.60	0.00	0.00
Jul		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	100.00	100.00	100.00	100.00	0.00	0.00	
Aug			0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	100.00	100.00	100.00	0.00	0.00	0.00	
Sep			0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	100.00	100.00	0.00	0.00			
Oct				0.00	0.00	0.00	0.00	0.00	0.00	100.00	100.00	0.00	0.00				
Nov					0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00					
Dec						0.00	0.00	0.00	0.00	100.00	0.00	0.00					

Sunlight assessment										Winter months APSH (%)							
Total APSH (%)					Ratio					Existing				Proposed			
Existing		Proposed			Ratio		Existing			Existing		Existing		Proposed		Proposed	
27.30		24.29			0.89		19.03			19.03		19.03		15.97		15.97	





Surface 7 – 18/20 Lancaster Grove - GF

The results are expressed as a percentage of area receiving direct sunlight on the 21st of each month.

Existing

Month	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
Jan						0.00	0.00	0.00	0.00	63.00	100.00	100.00	100.00	0.00			
Feb					26.60	92.90	17.70	0.00	0.00	21.40	100.00	100.00	100.00	0.00			
Mar				0.00	0.00	84.00	0.00	0.00	0.00	6.50	95.50	100.00	100.00	100.00	0.00		
Apr		0.00	0.00	0.00	23.80	17.50	0.00	0.00	0.00	0.00	86.10	100.00	100.00	100.00	0.00		
May		0.00	0.00	0.90	0.10	0.00	0.00	0.00	0.00	0.00	76.70	100.00	100.00	0.00	0.00		
Jun	0.00	0.00	0.00	0.00	11.10	1.30	0.00	0.00	0.00	0.00	65.20	100.00	100.00	0.00	0.00	0.00	0.00
Jul		0.00	0.00	0.00	1.10	7.70	0.00	0.00	0.00	0.00	63.80	100.00	100.00	0.00	0.00		
Aug			0.00	0.00	16.40	21.20	0.00	0.00	0.00	0.00	80.80	100.00	100.00	100.00	0.00	0.00	0.00
Sep			0.00	0.00	47.00	50.90	0.00	0.00	0.00	23.40	100.00	100.00	100.00	99.00			
Oct				0.00	61.90	33.50	3.40	0.00	0.00	92.90	100.00	100.00	85.20				
Nov					0.40	0.50	18.90	0.00	0.00	99.70	100.00	100.00					
Dec						8.70	4.90	0.00	0.00	100.00	100.00	100.00					





Proposed

Month	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
Jan						0	0	0	0	63	100	100	0				
Feb					0	0	17.7	0	0	21.4	100	100	100	0			
Mar			0	0	0	17	0	0	0	6.5	95.5	100	100	100	0		
Apr	0	0	0	0	8.9	17.4	0	0	0	0	86.1	100	100	100	0		
May	0	0	0	1.1	0.1	0	0	0	0	0	76.7	100	100	0	0	0	
Jun	0	0	0	0	8.3	1.3	0	0	0	0	65.2	100	100	0	0	0	0
Jul	0	0	0	0	1.5	7.7	0	0	0	0	63.8	100	100	0	0	0	
Aug		0	0	0	9.6	20.6	0	0	0	0	80.8	100	100	100	0	0	
Sep		0	0	0	0	12.9	0	0	0	23.4	100	100	100	99			
Oct				0	0	2.2	3.4	0	0	92.9	100	100	85.2				
Nov					0	0	18.9	0	0	99.7	100	100					
Dec						0	4.9	0	0	100	100	100					

Sunlight assessment										Winter months APSH (%)		
Total APSH (%)										Existing	Proposed	Ratio
Existing	31.77					Proposed	28.96			42.14	36.88	0.91



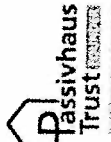


Surface 8 – 18/20 Lancaster Grove - FF

The results are expressed as a percentage of area receiving direct sunlight on the 21st of each month.

Existing

Month	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
Jan						40.2	0	0	0	28.7	100	100	100				
Feb					71.8	48.6	0	0	0	0	61.4	100	100	100			
Mar				0	48.7	0	0	0	0	0	31.4	100	100	100	37.4		
Apr	0	0	0	0	0.5	0	0	0	0	0	27	93.2	100	100	0		
May	0	0	0	30.1	0	0	0	0	0	0	7.6	63.8	100	0	0	0	
Jun	0	0	0	0	0	0	0	0	0	0	0	20.7	94.6	0	0	0	0
Jul	0	0	0	0	0	0	0	0	0	0	2.6	52.1	99.8	0	0	0	
Aug		0	0	0	0.6	0	0	0	0	0	22.5	90.1	100	100	0	0	
Sep		0	0	0	24.2	0	0	0	0	0	51.8	100	100	100			
Oct			0	0	86.8	1	0	0	0	11.9	100	100	100				
Nov					3.3	0	0	0	0	88.7	100	100					
Dec						0	0	0	0	70.8	100	100					





Proposed

Month	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
Jan						3.7	0	0	0	28.7	100	100	100				
Feb					0	37	0	0	0	0	61.4	100	100	100			
Mar				0	0	0	0	0	0	0	31.4	100	100	100	37.4		
Apr	0	0	0	43.7	0.5	0	0	0	0	0	27	93.2	100	100	0		
May	0	0	0	30.1	0	0	0	0	0	0	7.6	63.8	100	0	0	0	
Jun	0	0	0	0	0	0	0	0	0	0	0	20.7	94.6	0	0	0	0
Jul	0	0	0	0	0	0	0	0	0	0	2.6	52.1	99.8	0	0	0	
Aug		0	0	56.9	0.6	0	0	0	0	0	22.5	90.1	100	100	0	0	
Sep		0	0	0	0	0	0	0	0	0	51.8	100	100	100			
Oct				0	19.5	1	0	0	0	11.9	100	100	100				
Nov					0	0	0	0	0	88.7	100	100					
Dec						0	0	0	0	70.8	100	100					

Sunlight assessment										Winter months APSH (%)							
Total APSH (%)					Ratio					Existing				Proposed			
Existing	Proposed	Ratio	Existing	Proposed	Existing	Proposed	Ratio	Existing	Proposed	Existing	Proposed	Existing	Proposed	Existing	Proposed	Existing	Proposed
26.14	24.99	0.96	40.56	36.21													



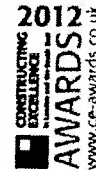


Surface 9 – 18/20 Lancaster Grove - GF

The results are expressed as a percentage of area receiving direct sunlight on the 21st of each month.

Existing

Month	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
Jan						0	0	50.7	0	0	0	0	0				
Feb					0	0	100	0	0	0	0	0	0	0			
Mar				0	0	0.2	90.9	0	0	0	0	0	0	0	0		
Apr		0	0	0	18.6	77.2	14.5	0	0	0	0	0	0	0	0		
May		0	0	36.9	97.5	10.1	0	0	0	0	0	0	0	0	0		
Jun	0	0	0	52.6	100	23.1	0	0	0	0	0	0	0	0	0	0	
Jul		0	0	26.6	96.7	43.4	0	0	0	0	0	0	0	0	0	0	0
Aug			0	0	19.9	73.7	19.7	0	0	0	0	0	0	0	0	0	
Sep			0	0	0	47	7.7	0	0	0	0	0	0	0	0	0	
Oct				0	0	21	38.1	0	0	0	0	0	0	0			
Nov				0	0	24.1	0	0	0	0	0	0	0				
Dec					0	0	0	22.4	0	0	0	0	0				





Proposed

Month	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
Jan						0	0	50.7	0	0	0	0	0				
Feb					0	0	0.1	0	0	0	0	0	0	0			
Mar				0	0	0	72.7	0	0	0	0	0	0	0	0		
Apr		16.3	0	0	0	27.1	14.5	0	0	0	0	0	0	0	0		
May		47.4	0	0	0	9.6	0	0	0	0	0	0	0	0	0	0	
Jun	80.6	69	0.6	0	0	21.8	23.1	0	0	0	0	0	0	0	0	0	0
Jul		58.6	0	0	0	3.2	26.9	0	0	0	0	0	0	0	0	0	
Aug			0	0	0	0	26.4	19.7	0	0	0	0	0	0	0	0	
Sep			0	0	0	0	0	7.7	0	0	0	0	0	0			
Oct				0	0	0	0	20.7	0	0	0	0	0				
Nov					0	0	0	0	0	0	0	0					
Dec						0	0	22.4	0	0	0	0					

Sunlight assessment										Winter months APSH (%)							
Total APSH (%)										Existing		Proposed		Ratio		Existing	
										7.84		4.45		0.57		6.32	
																3.03	



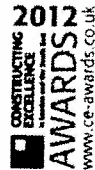


Surface 10 – 18/20 Lancaster Grove - FF

The results are expressed as a percentage of area receiving direct sunlight on the 21st of each month.

Existing

Month	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
Jan						0	35.4	0	0	0	0	0	0				
Feb					0	22.7	88.9	0	0	0	0	0	0	0			
Mar				0	0	80.8	0	0	0	0	0	0	0	0	0		
Apr		0	27.2	100	86	0	0	0	0	0	0	0	0	0	0		
May		17.5	100	100	57.4	0	0	0	0	0	0	0	0	0	0	0	
Jun	0	43.2	100	100	68.2	0	0	0	0	0	0	0	0	0	0	0	0
Jul		6.4	96	100	79	0	0	0	0	0	0	0	0	0	0	0	
Aug			22.6	100	91.3	0	0	0	0	0	0	0	0	0	0	0	
Sep			0	0	0	60.6	0	0	0	0	0	0	0	0	0	0	
Oct				0	0	100	1	0	0	0	0	0	0	0			
Nov					0	93.9	0	0	0	0	0	0	0	0			
Dec						25.5	0	0	0	0	0	0	0				





Proposed

Month	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
Jan						0	35.4	0	0	0	0	0	0				
Feb					0	0	88.9	0	0	0	0	0	0	0			
Mar				0	34.6	54.5	0	0	0	0	0	0	0	0	0		
Apr		20.9	0	38.9	86	0	0	0	0	0	0	0	0	0	0		
May		51.8	24.1	90.6	57.4	0	0	0	0	0	0	0	0	0	0	0	
Jun	100	72.2	39	100	68.2	0	0	0	0	0	0	0	0	0	0	0	0
Jul		65.4	16.2	80.9	79	0	0	0	0	0	0	0	0	0	0	0	
Aug		0	0	35.4	91.3	0	0	0	0	0	0	0	0	0	0	0	
Sep		0	0	0	57	60.6	0	0	0	0	0	0	0	0			
Oct				0	0	34.4	1	0	0	0	0	0	0				
Nov					0	10.3	0	0	0	0	0	0					
Dec						0	0	0	0	0	0	0					

Sunlight assessment										Winter months APSH (%)							
Total APSH (%)										Existing		Proposed		Ratio		Existing	
										12.70		10.52		0.82		8.15	
																4.71	





Surface 11 – 18/20 Lancaster Grove - FF

The results are expressed as a percentage of area receiving direct sunlight on the 21st of each month.

Existing

Month	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
Jan						0	100	0	0	0	0	0	0				
Feb					0	0	52.1	0	0	0	0	0	0	0			
Mar				13.4	80.3	100	4.3	0	0	0	0	0	0	0	0		
Apr		0	23.3	100	100	99.6	0	0	0	0	0	0	0	0	0		
May		36.7	74.9	100	100	99.9	24.5	0	0	0	0	0	0	0	0	0	
Jun	71	68.8	88.9	100	100	100	71.7	0	0	0	0	0	0	0	0	0	
Jul		39.7	62.2	100	100	100	36.7	0	0	0	0	0	0	0	0	0	0
Aug			17.7	100	100	100	0	0	0	0	0	0	0	0	0	0	
Sep			0	40.6	100	88.9	0	0	0	0	0	0	0	0	0	0	
Oct				0	0	59.8	0	0	0	0	0	0	0	0			
Nov					0	0	100	0	0	0	0	0	0				
Dec						0	2.3	0	0	0	0	0	0				



Proposed

Month	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
Jan						0	76.9	0	0	0	0	0	0				
Feb					0	20.3	52.1	0	0	0	0	0	0	0			
Mar				0	37	100	4.3	0	0	0	0	0	0	0	0		
Apr		100	100	100	100	99.6	0	0	0	0	0	0	0	0	0		
May		100	100	100	100	99.9	24.5	0	0	0	0	0	0	0	0	0	
Jun	100	100	100	100	100	100	71.7	0	0	0	0	0	0	0	0	0	0
Jul		100	100	100	100	100	36.7	0	0	0	0	0	0	0	0	0	
Aug			100	100	100	100	0	0	0	0	0	0	0	0	0	0	
Sep			100	0	58	88.9	0	0	0	0	0	0	0	0			
Oct				0	0	0	0	0	0	0	0	0	0				
Nov					0	0	100	0	0	0	0	0					
Dec						0	2.3	0	0	0	0	0					

Sunlight assessment										Winter months APSH (%)							
Total APSH (%)										Existing		Ratio		Existing		Proposed	
										20.12		1.14		9.31		7.14	





Surface 12 – 18/20 Lancaster Grove - FF

The results are expressed as a percentage of area receiving direct sunlight on the 21st of each month.

Existing

Month	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
Jan						0	83	0	0	0	0	0	0				
Feb					0	3.3	82.2	0	0	0	0	0	0	0			
Mar				25.6	93.4	100	11	0	0	0	0	0	0	0	0		
Apr		100	100	100	100	100	97.5	0	0	0	0	0	0	0	0		
May		100	100	100	100	100	100	0	0	0	0	0	0	0	0	0	
Jun	100	100	100	100	100	100	100	20.8	0	0	0	0	0	0	0	0	0
Jul		100	100	100	100	100	100	0.1	0	0	0	0	0	0	0	0	
Aug			100	100	100	100	99.1	0	0	0	0	0	0	0	0	0	
Sep			50.4	24.2	100	100	0	0	0	0	0	0	0	0	0	0	
Oct				0	0	17.9	15.7	0	0	0	0	0	0	0	0		
Nov					0	0	88.6	0	0	0	0	0	0				
Dec						0	90.4	0	0	0	0	0	0				





Proposed

Month	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
Jan						0	0	0	0	0	0	0	0				
Feb					0	43.5	82.2	0	0	0	0	0	0	0			
Mar				68.5	100	100	11	0	0	0	0	0	0	0	0		
Apr		100	100	100	100	100	97.5	0	0	0	0	0	0	0	0		
May		100	100	100	100	100	100	0	0	0	0	0	0	0	0	0	
Jun	100	100	100	100	100	100	100	20.8	0	0	0	0	0	0	0	0	0
Jul		100	100	100	100	100	100	0.1	0	0	0	0	0	0	0	0	
Aug		100	100	100	100	100	99.1	0	0	0	0	0	0	0	0	0	
Sep		100	100	0	100	100	0	0	0	0	0	0	0	0			
Oct			0	0	27.8	87.9	15.7	0	0	0	0	0	0				
Nov					0	7.3	88.6	0	0	0	0	0					
Dec						0	60.3	0	0	0	0	0					

Sunlight assessment										Winter months APSH (%)							
Total APSH (%)										Existing		Ratio		Existing		Proposed	
Existing										27.49		1.02		11.11		12.60	
Proposed										28.24							





Surface 13 – 18/20 Lancaster Grove - GF

The results are expressed as a percentage of area receiving direct sunlight on the 21st of each month.

Existing

Month	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
Jan						0	0	48.3	0	0	0	0	0				
Feb					0	0	22	0	0	0	0	0	0	0			
Mar				0	0	53.5	100	0	0	0	0	0	0	0	0		
Apr	56	26.7	3.9	39.8	19.6	100	19.4	0	0	0	0	0	0	0	0		
May	85.8	57.2	39.8	72.3	100	100	100	0	0	0	0	0	0	0	0	0	
Jun	75.6	92.1	72.4	58	87.7	100	100	0	0	0	0	0	0	0	0	0	0
Jul		85.5	63.5	42.3	65	100	100	0	0	0	0	0	0	0	0	0	0
Aug		29.5	4.2	15.8	0	0	43.7	0	0	0	0	0	0	0	0	0	0
Sep		0		0	0	77.6	71.8	0	0	0	0	0	0	0	0	0	0
Oct				0	0	0	94	0	0	0	0	0	0	0			
Nov				0	0	0	37.6	0	0	0	0	0	0	0			
Dec						0	0	29.8	0	0	0	0	0	0			





Proposed

Month	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
Jan						0	0	39.6	0	0	0	0	0				
Feb					0	0	0	0	0	0	0	0	0	0			
Mar				46.1	35.8	26.5	87.7	0	0	0	0	0	0	0	0		
Apr			72.7	90.2	100	100	100	0	0	0	0	0	0	0	0		
May			87.6	100	100	100	100	0	0	0	0	0	0	0	0	0	
Jun	75.6	92.1	100	100	100	100	100	0	0	0	0	0	0	0	0	0	0
Jul		85.5	100	100	100	100	100	0	0	0	0	0	0	0	0	0	
Aug			89.4	100	100	100	43.7	0	0	0	0	0	0	0	0	0	
Sep			74.5	0	71.6	28.8	71.8	0	0	0	0	0	0	0			
Oct				0	0	0	59.7	0	0	0	0	0	0				
Nov					0	0	0	0	0	0	0	0					
Dec						0	0	29.8	0	0	0	0					

Sunlight assessment										Winter months APSH (%)							
Total APSH (%)										Existing		Proposed		Ratio		Existing	
										17.26		23.44		1.35		7.00	
																5.91	



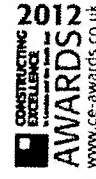


Surface 14 – 24 Lancaster Grove - GF

The results are expressed as a percentage of area receiving direct sunlight on the 21st of each month.

Existing

Month	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
Jan						0.00	0.00	24.00	20.70	100.00	0.00	36.10	0.00				
Feb					0.00	0.00	0.00	0.00	98.10	100.00	100.00	0.00	0.00	0.00			
Mar				0.00	0.00	0.00	0.00	13.50	100.00	100.00	100.00	46.50	0.00	0.00	0.00		
Apr		0.00	0.00	0.00	0.00	0.00	0.00	78.50	100.00	100.00	100.00	100.00	0.00	0.00	0.00	0.00	
May		0.00	0.00	0.00	0.00	0.00	37.90	88.60	100.00	100.00	100.00	100.00	0.00	0.00	0.00	0.00	
Jun	0.00	0.00	0.00	0.00	0.00	0.00	47.60	89.40	100.00	100.00	100.00	100.00	57.70	0.00	0.00	0.00	0.00
Jul		0.00	0.00	0.00	0.00	0.00	17.70	84.80	100.00	100.00	100.00	100.00	12.30	0.00	0.00	0.00	
Aug			0.00	0.00	0.00	0.00	0.00	76.60	100.00	100.00	100.00	100.00	0.00	0.00	0.00	0.00	
Sep			0.00	0.00	0.00	0.00	0.00	54.70	100.00	100.00	100.00	0.00	0.00	0.00	0.00	0.00	
Oct				0.00	0.00	0.00	0.00	75.60	100.00	100.00	99.50	0.00	0.00				
Nov					0.00	0.00	0.00	71.20	35.40	0.50	0.00	0.00					
Dec						0.00	0.00	57.50	0.00	0.00	0.00	6.00					





Proposed

Month	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
Jan						0.00	0.00	24.00	20.70	100.00	0.00	0.00	0.00				
Feb					0.00	0.00	0.00	0.00	98.10	100.00	0.00	0.00	0.00	0.00			
Mar				0.00	0.00	0.00	0.00	13.50	100.00	100.00	70.60	0.00	0.00	0.00	0.00		
Apr			0.00	0.00	0.00	0.00	0.00	78.50	100.00	100.00	100.00	2.50	0.00	0.00	0.00	0.00	
May		0.00	0.00	0.00	0.00	0.00	37.90	88.60	100.00	100.00	100.00	82.30	0.00	0.00	0.00	0.00	
Jun	0.00	0.00	0.00	0.00	0.00	0.00	47.60	89.40	100.00	100.00	100.00	99.60	0.90	0.00	0.00	0.00	0.00
Jul		0.00	0.00	0.00	0.00	0.00	17.70	84.80	100.00	100.00	100.00	95.60	0.00	0.00	0.00	0.00	
Aug			0.00	0.00	0.00	0.00	0.00	76.60	100.00	100.00	100.00	9.80	0.00	0.00	0.00	0.00	
Sep			0.00	0.00	0.00	0.00	0.00	54.70	100.00	100.00	14.40	0.00	0.00	0.00			
Oct				0.00	0.00	0.00	0.00	75.60	100.00	56.70	0.00	0.00	0.00				
Nov					0.00	0.00	0.00	71.20	35.40	0.50	0.00	0.00					
Dec						0.00	0.00	57.50	0.00	0.00	0.00	0.00					

Sunlight assessment										Winter months APSH (%)							
Total APSH (%)										Existing				Proposed			
Existing										30.50				25.39			
Ratio										0.83				0.83			
Existing										25.17				18.61			





9.8. Overshadowing results and pictures (21st March)

Amenity 1 - 18-20 Lancaster Grove - Garden

The results are expressed as a percentage of area receiving direct sunlight on 21st March.

Existing

Month	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
Jan						15.4	39.7	49.7	61.6	67.5	65	49.9	0				
Feb					5.2	20.3	30.6	44.3	59.4	70.3	76.9	70.9	54.9	0			
Mar			12	29	18.9	25.6	40	58.8	70.9	78.9	80.1	72.8	50.1	0			
Apr	0	24.3	35.2	18.7	12.2	22.7	40.3	57.7	69.7	78.8	84.8	80.2	72.6	30.2			
May	0	32.9	25	15.2	11.4	23.7	40.7	56.8	68.3	77.7	85.4	83.3	76.6	59.8	13.5		
Jun	0	0.2	29.9	23	14.6	11.3	23.5	39.5	55.2	67.1	76.3	84.4	84.7	78.2	63.3	36.3	0
Jul	0	28.7	26.7	16.5	10.7	21.4	37.9	54.4	66.8	76.2	84.5	84.1	80.7	73.4	40	0	
Aug		20.3	36.4	19.5	12	21.6	39.2	56.7	69	78.2	84.9	80.7	70	15.6			
Sep	0	23.7	25.2	19	28.9	44.9	62.8	73.2	80.7	78.8	70	3.2					
Oct		0	14.9	24.9	39	51.2	66.4	73.7	74.4	63.9	29.6						
Nov			0	29.4	43.5	54	64.7	68	59.6	29.6							
Dec				0.3	42.2	51.3	62	62.9	53.5	21.1							



Proposed

Month	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
Jan				15.4	39.7	49.7	61.6	67.5	65	49.9	0						
Feb				4.9	19	30.6	44.3	70.3	76.9	70.9	54.9	0					
Mar																	
Apr	0																
May	0																
Jun	0																
Jul	0																
Aug																	
Sep																	
Oct																	
Nov																	
Dec																	

Overshadowing assessment																	
% of the amenity area receiving direct sunlight on 21 st March																	
Existing			Proposed			Ratio											
44.76			42.75			0.95											



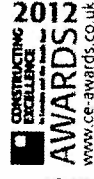


Amenity 2 - 24 Lancaster Grove - Garden

The results are expressed as a percentage of area receiving direct sunlight on 21st March.

Existing

Month	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
Jan						0.70	13.60	22.70	17.40	13.00	3.30	0.20	0.00				
Feb					0.00	10.80	19.70	26.80	22.90	19.70	3.50	0.40	0.00	0.00			
Mar				8.40	15.80	20.60	24.90	31.30	30.00	24.20	13.10	3.50	0.00	1.30	0.00		
Apr			7.30	24.10	33.60	37.40	40.20	43.60	43.00	35.60	26.90	22.40	7.50	15.60	12.00	0.00	
May		0.10	15.00	28.30	42.00	44.80	47.60	50.40	50.40	43.40	36.20	33.00	30.60	21.40	20.10	3.70	
Jun	0.00	1.90	15.70	28.20	42.30	47.10	49.70	52.40	53.00	46.80	40.00	36.20	35.40	22.90	21.90	10.30	0.00
Jul		0.00	13.30	26.20	40.20	44.70	47.20	50.30	50.80	44.90	37.60	33.50	32.80	21.70	21.20	7.80	
Aug			6.20	23.10	33.70	37.40	40.20	43.60	43.20	36.40	27.60	23.20	8.90	15.30	13.10	0.00	
Sep			0.00	11.80	17.80	21.90	26.20	32.20	29.50	21.30	9.30	1.70	0.00	0.00			
Oct				0.00	3.50	15.70	22.90	26.80	20.30	11.80	1.20	0.00	0.00				
Nov					0.00	5.90	17.50	20.60	15.80	7.90	1.50	0.00					
Dec						0.00	12.00	19.50	14.20	10.20	2.40	0.00					





Proposed

Month	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
Jan						0.70	13.60	22.70	17.40	12.90	3.20	0.20	0.00				
Feb					0.00	10.80	19.70	26.80	22.90	18.00	2.50	0.40	0.00	0.00			
Mar				8.40	15.80	20.60	24.90	31.30	30.00	23.90	9.70	3.00	0.00	0.30	0.00		
Apr			7.30	24.10	33.60	37.40	40.20	43.60	43.00	35.60	23.50	18.20	7.30	5.20	8.90	0.00	
May		0.10	15.00	28.30	42.00	44.80	47.60	50.40	50.40	43.40	34.60	28.10	25.80	15.50	16.80	3.70	
Jun	0.00	1.90	15.70	28.20	42.30	47.10	49.70	52.40	53.00	46.80	39.40	31.90	30.80	18.80	19.40	10.30	0.00
Jul		0.00	13.30	26.20	40.20	44.80	47.20	50.30	50.80	44.90	36.70	28.80	28.00	16.20	17.10	7.80	
Aug			6.20	23.10	33.70	37.40	40.20	43.60	43.20	36.40	24.60	18.60	8.50	4.90	9.40	0.00	
Sep			0.00	11.80	17.80	21.90	26.20	32.20	29.50	19.90	6.70	1.60	0.00	0.00			
Oct				0.00	3.50	15.70	22.90	26.80	20.30	9.10	1.20	0.00	0.00				
Nov					0.00	5.90	17.50	20.60	15.10	7.90	1.50	0.00					
Dec						0.00	12.00	19.50	14.10	10.20	2.40	0.00					

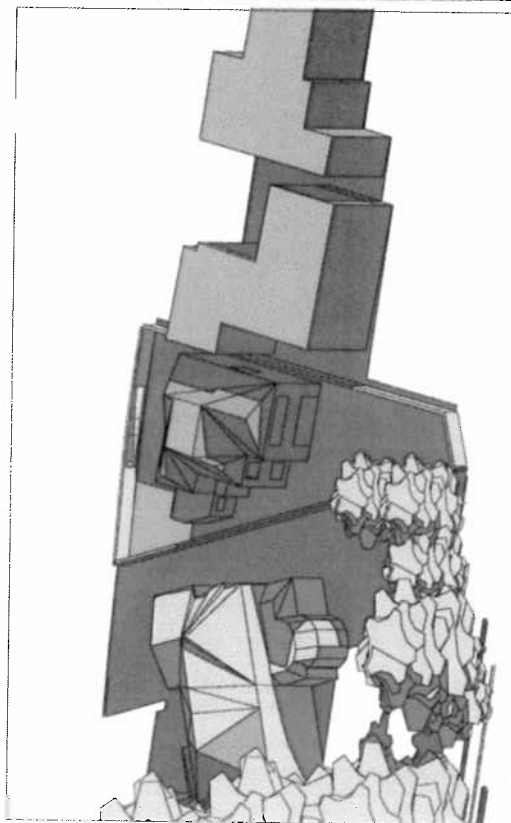
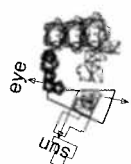
Overshadowing assessment			
% of the amenity area receiving direct sunlight on 21 st March			
Existing	Proposed	Ratio	
14.42	14.00	0.97	





Suncast image:

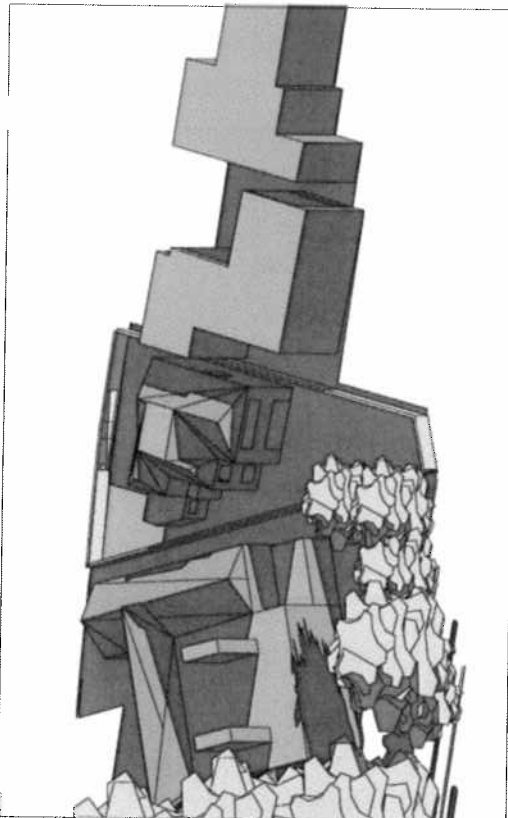
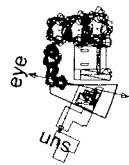
View time = 21 Mar 07:00
Site Latitude = 51.48
Longitude diff. = -0.45
Model Bearing = 168.00
Sun: azi = 100.16 alt = 7.48
Eye: azi = 180.00 alt = 50.00



Existing

Suncast image:

View time = 21 Mar 07:00
Site Latitude = 51.48
Longitude diff. = -0.45
Model Bearing = 168.00
Sun: azi = 100.16 alt = 7.48
Eye: azi = 180.00 alt = 50.00

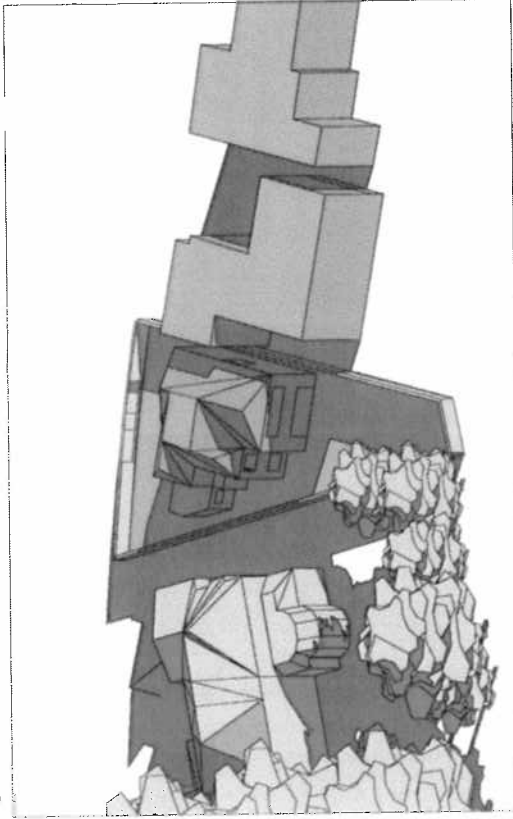
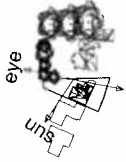


Proposed



Suncast image:

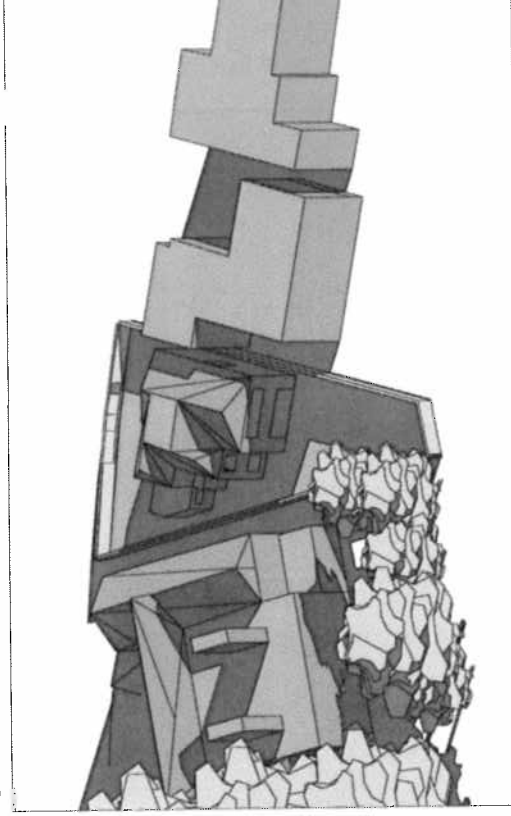
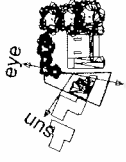
View time = 21 Mar 08:00
Site Latitude = 51.48
Longitude diff. = -0.45
Model Bearing = 168.00
Sun: azi = 112.48 alt = 16.43
Eye: azi = 180.00 alt = 50.00



Existing

Suncast image:

View time = 21 Mar 08:00
Site Latitude = 51.48
Longitude diff. = -0.45
Model Bearing = 168.00
Sun: azi = 112.48 alt = 16.43
Eye: azi = 180.00 alt = 50.00



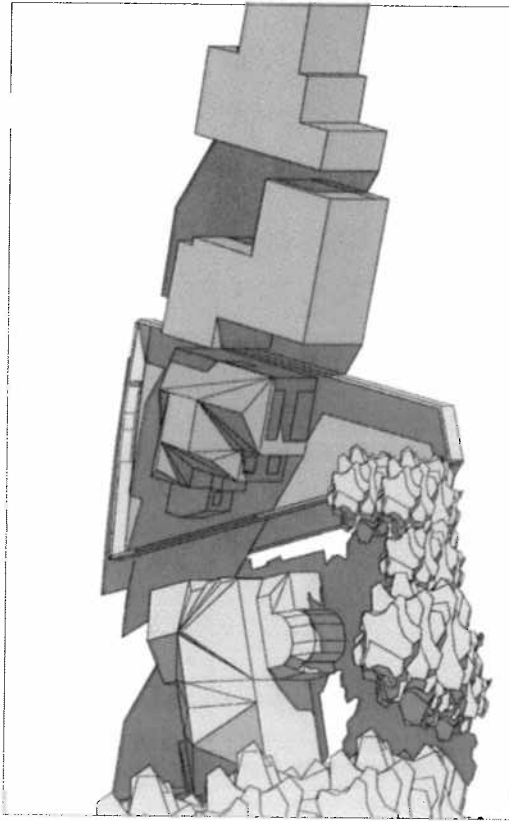
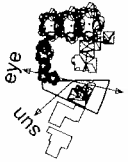
Proposed





Suncast image:

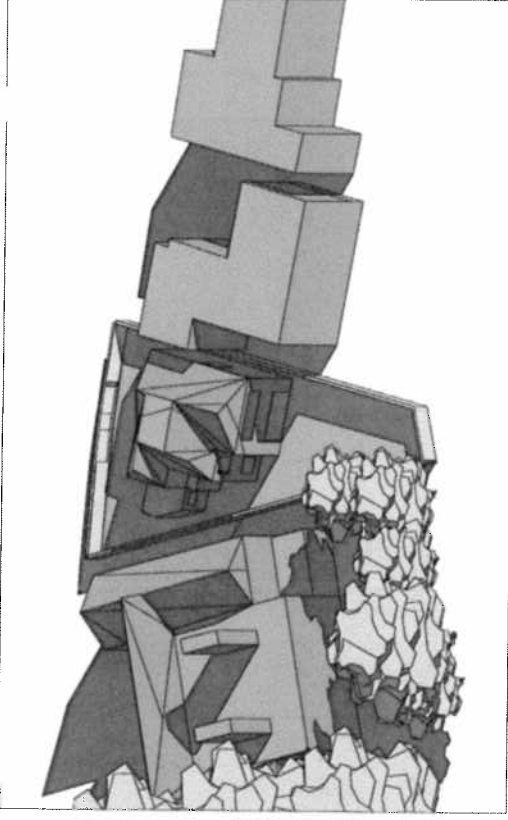
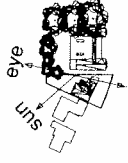
View time = 21 Mar 09:00
Site Latitude = 51.48
Longitude diff. = -0.45
Model Bearing = 168.00
Sun: azi = 125.95 alt = 24.58
Eye: azi = 180.00 alt = 50.00



Existing

Suncast image:

View time = 21 Mar 09:00
Site Latitude = 51.48
Longitude diff. = -0.45
Model Bearing = 168.00
Sun: azi = 125.95 alt = 24.58
Eye: azi = 180.00 alt = 50.00

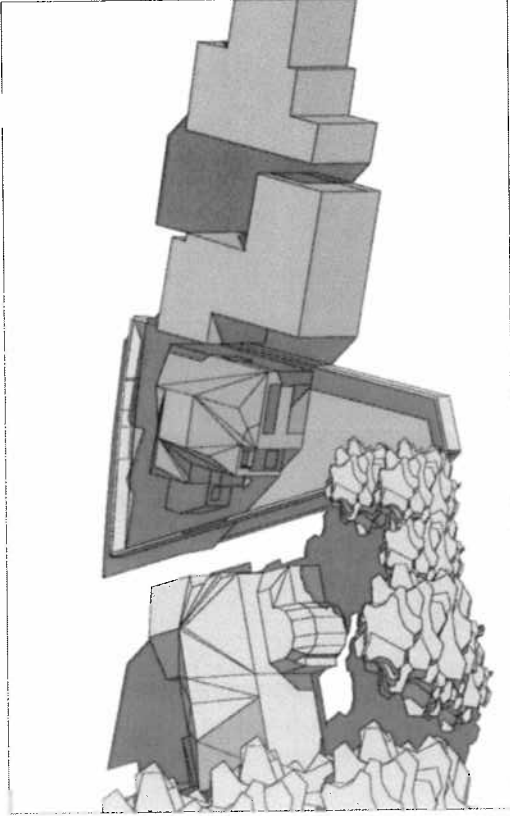
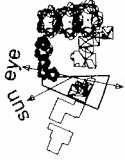


Proposed



Suncast image:

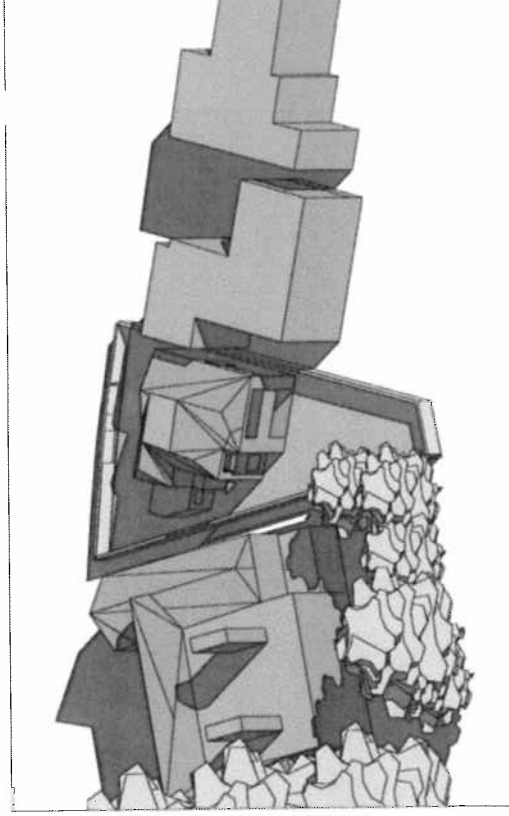
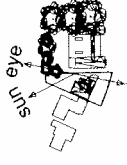
View time = 21 Mar 10:00
Site Latitude = 51.48
Longitude diff. = -0.45
Model Bearing = 168.00
Sun: azi = 141.13 alt = 31.35
Eye: azi = 180.00 alt = 50.00



Existing

Suncast image:

View time = 21 Mar 10:00
Site Latitude = 51.48
Longitude diff. = -0.45
Model Bearing = 168.00
Sun: azi = 141.13 alt = 31.35
Eye: azi = 180.00 alt = 50.00



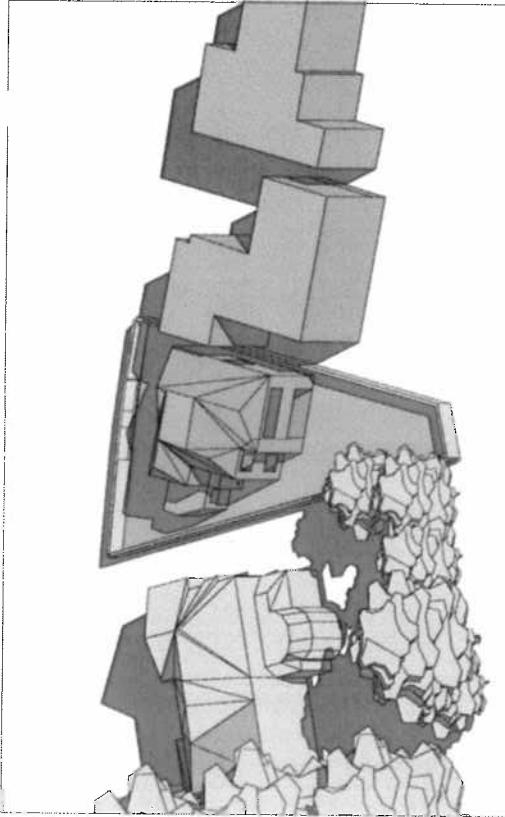
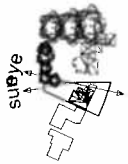
Proposed





Suncast image:

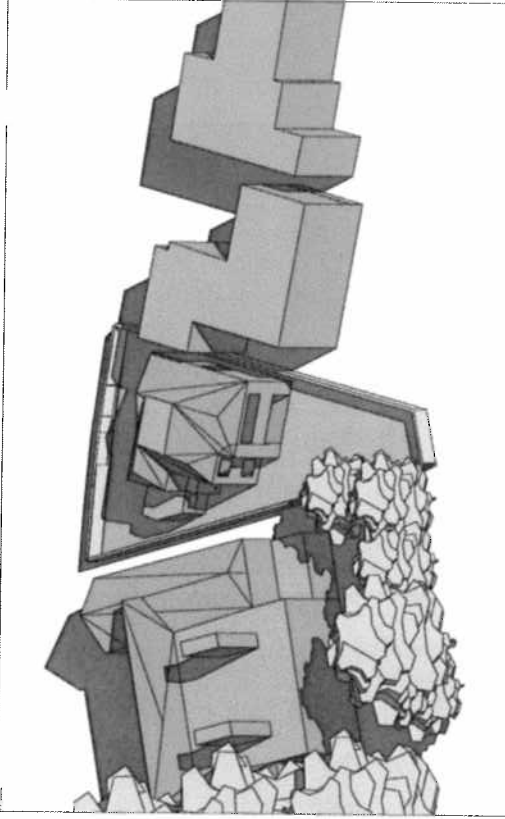
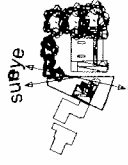
View time = 21 Mar 11:00
Site Latitude = 51.48
Longitude diff. = -0.45
Model Bearing = 168.00
Sun: azi = 158.28 alt = 36.06
Eye: azi = 180.00 alt = 50.00



Existing

Suncast image:

View time = 21 Mar 11:00
Site Latitude = 51.48
Longitude diff. = -0.45
Model Bearing = 168.00
Sun: azi = 158.28 alt = 36.06
Eye: azi = 180.00 alt = 50.00

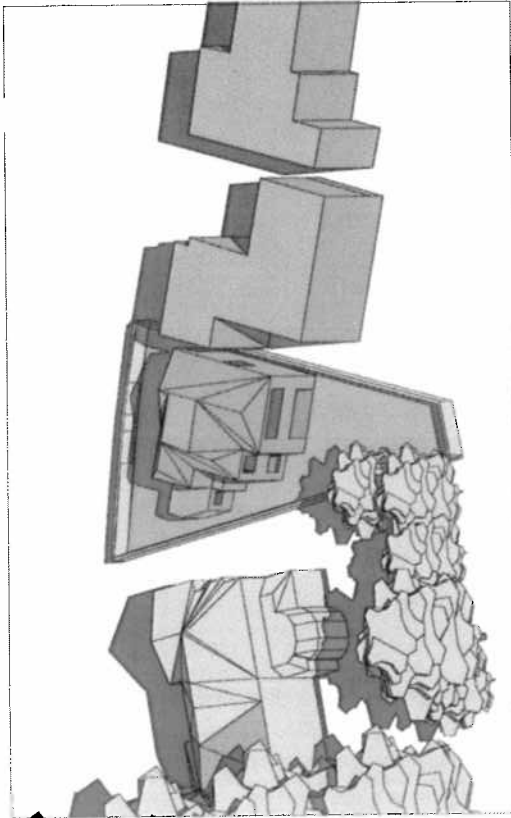


Proposed



Suncast image:

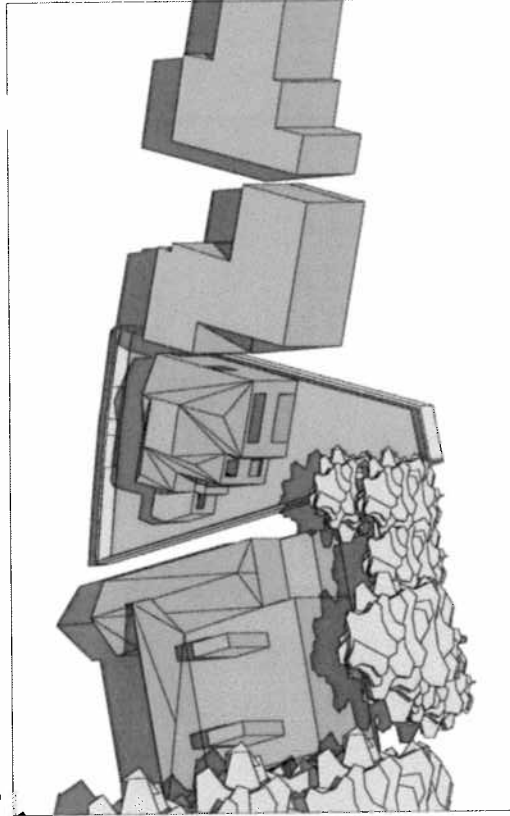
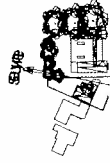
View time = 21 Mar 12:00
Site Latitude = 51.48
Longitude diff. = -0.45
Model Bearing = 168.00
Sun: azi = 176.94 alt = 38.07
Eye: azi = 180.00 alt = 50.00



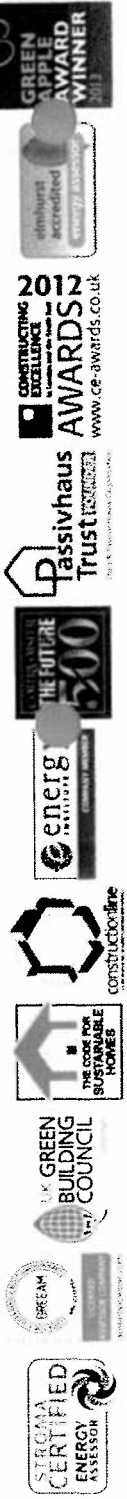
Existing

Suncast image:

View time = 21 Mar 12:00
Site Latitude = 51.48
Longitude diff. = -0.45
Model Bearing = 168.00
Sun: azi = 176.94 alt = 38.07
Eye: azi = 180.00 alt = 50.00



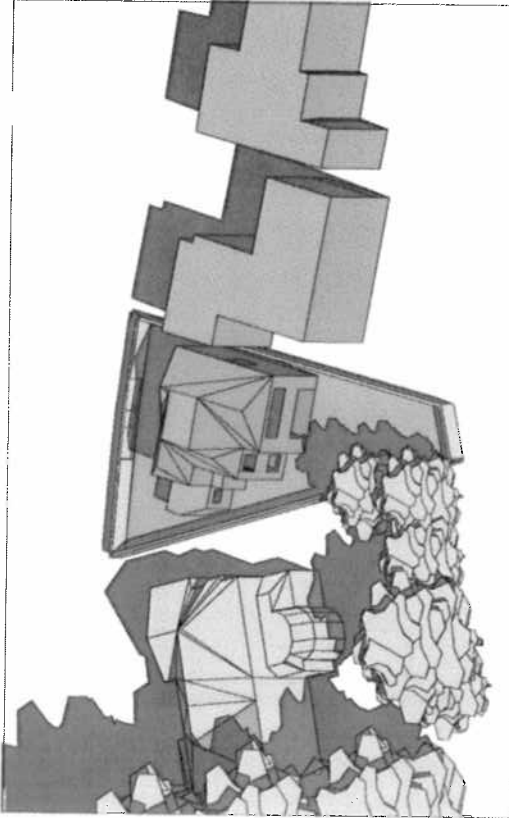
Proposed





Suncast image:

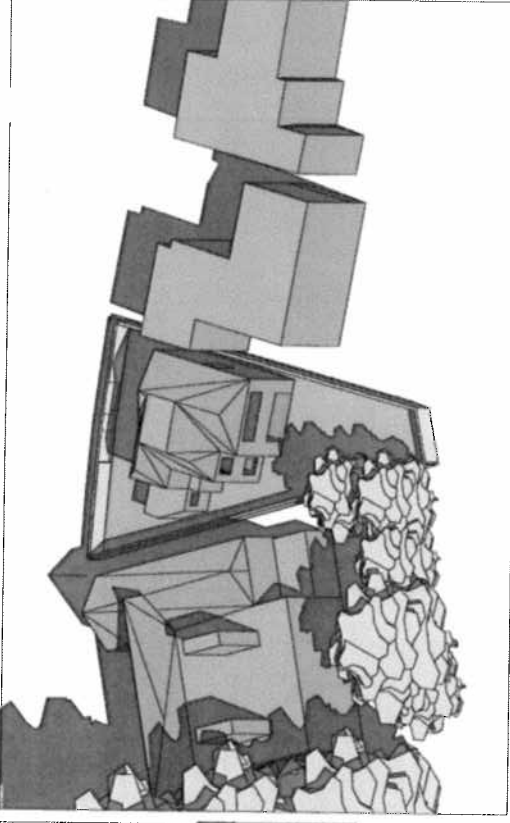
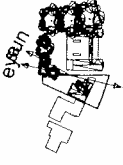
View time = 21 Mar 13:00
Site Latitude = 51.48
Longitude diff. = -0.45
Model Bearing = 168.00
Sun: azi = 195.84 alt = 37.03
Eye: azi = 180.00 alt = 50.00



Existing

Suncast image:

View time = 21 Mar 13:00
Site Latitude = 51.48
Longitude diff. = -0.45
Model Bearing = 168.00
Sun: azi = 195.84 alt = 37.03
Eye: azi = 180.00 alt = 50.00

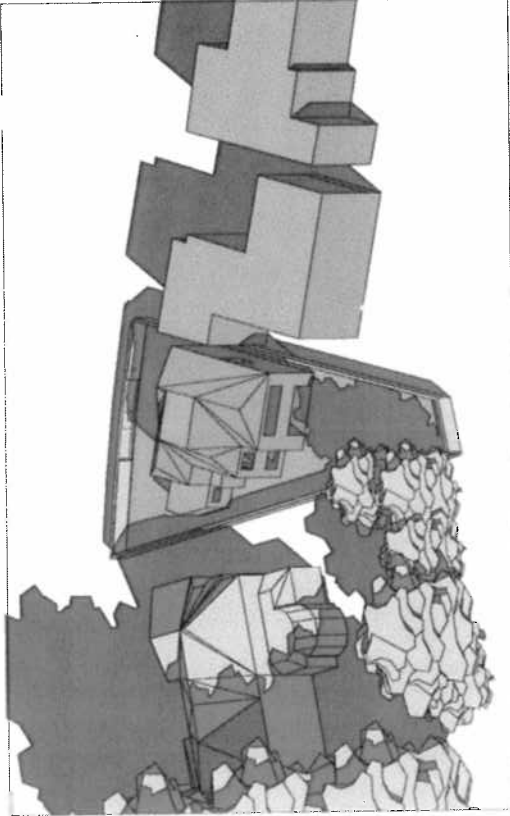
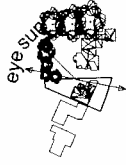


Proposed



Suncast image:

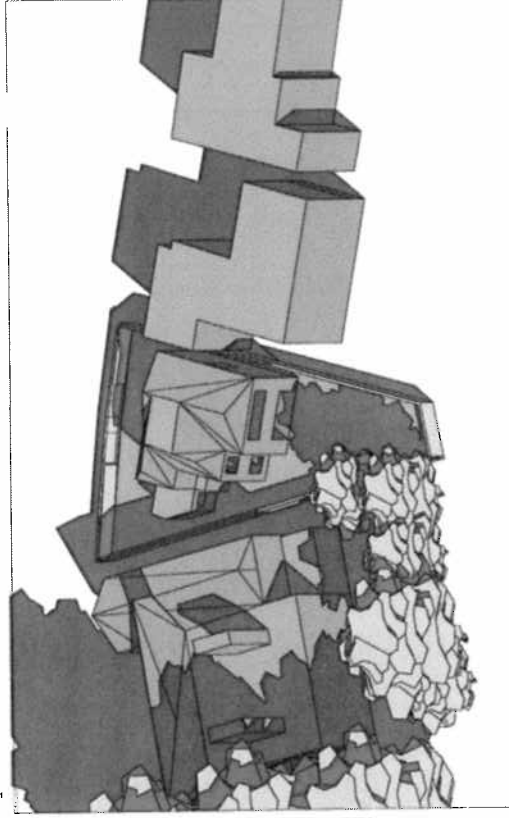
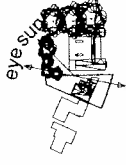
View time = 21 Mar 14:00
Site Latitude = 51.48
Longitude diff. = -0.45
Model Bearing = 168.00
Sun: azi = 213.57 alt = 33.12
Eye: azi = 180.00 alt = 50.00



Existing

Suncast image:

View time = 21 Mar 14:00
Site Latitude = 51.48
Longitude diff. = -0.45
Model Bearing = 168.00
Sun: azi = 213.57 alt = 33.12
Eye: azi = 180.00 alt = 50.00

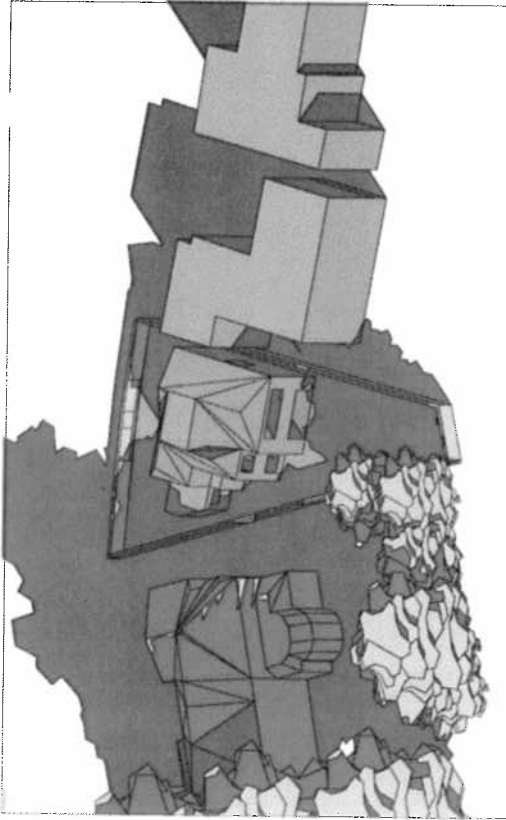
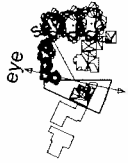


Proposed



Suncast image:

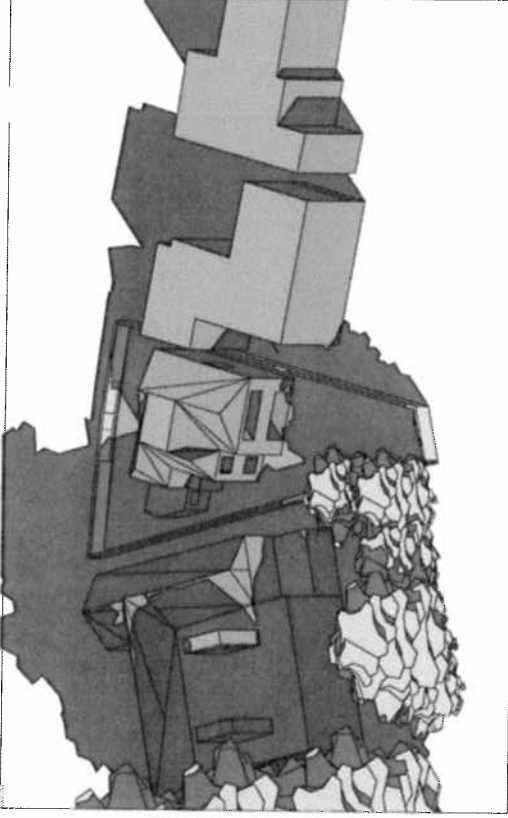
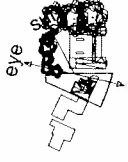
View time = 21 Mar 15:00
Site Latitude = 51.48
Longitude diff. = -0.45
Model Bearing = 168.00
Sun: azi = 229.38 alt = 26.93
Eye: azi = 180.00 alt = 50.00



Existing

Suncast image:

View time = 21 Mar 15:00
Site Latitude = 51.48
Longitude diff. = -0.45
Model Bearing = 168.00
Sun: azi = 229.38 alt = 26.93
Eye: azi = 180.00 alt = 50.00

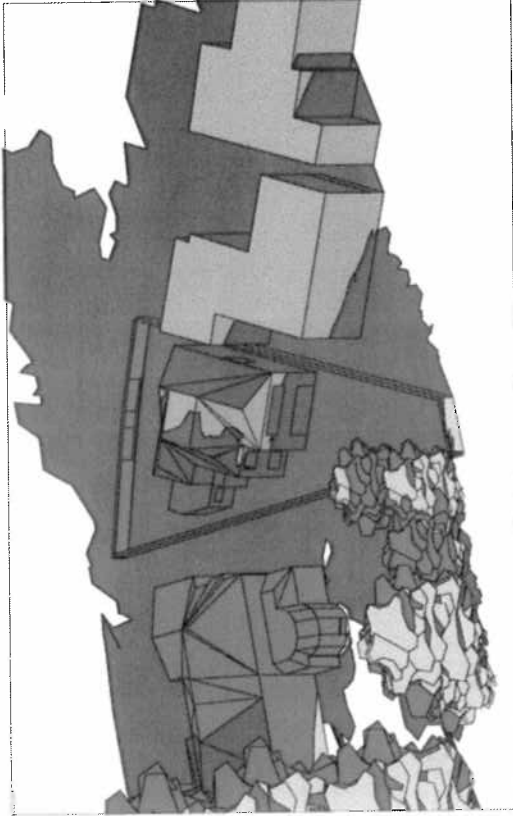
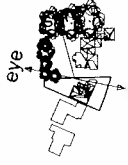


Proposed



Suncast image:

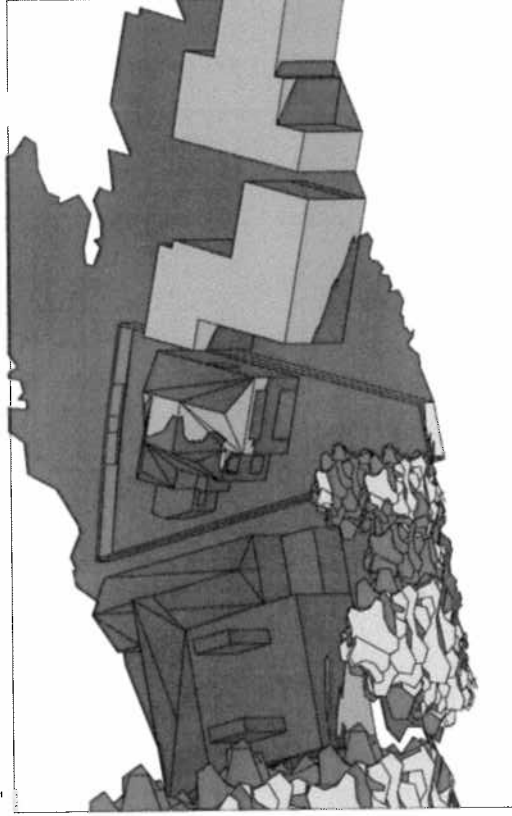
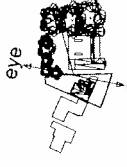
View time = 21 Mar 16:00
Site Latitude = 51.48
Longitude diff. = -0.45
Model Bearing = 168.00
Sun: azi = 243.34 alt = 19.16
Eye: azi = 180.00 alt = 50.00



Existing

Suncast image:

View time = 21 Mar 16:00
Site Latitude = 51.48
Longitude diff. = -0.45
Model Bearing = 168.00
Sun: azi = 243.34 alt = 19.16
Eye: azi = 180.00 alt = 50.00

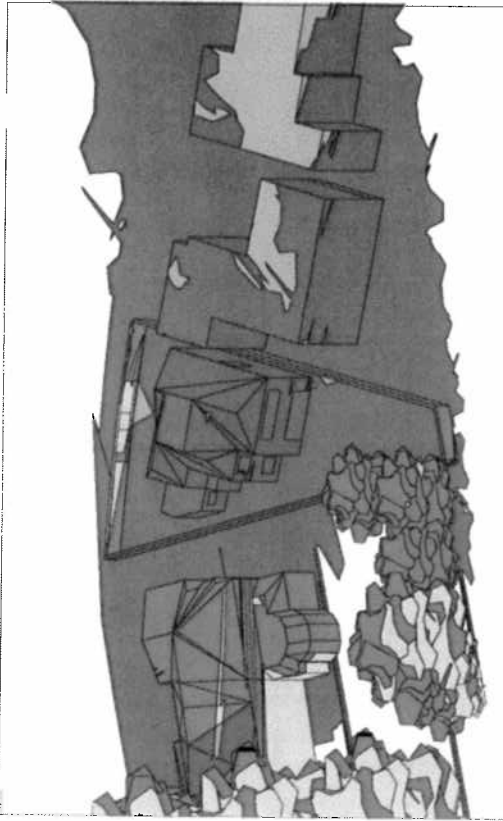
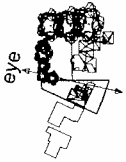


Proposed



Suncast image:

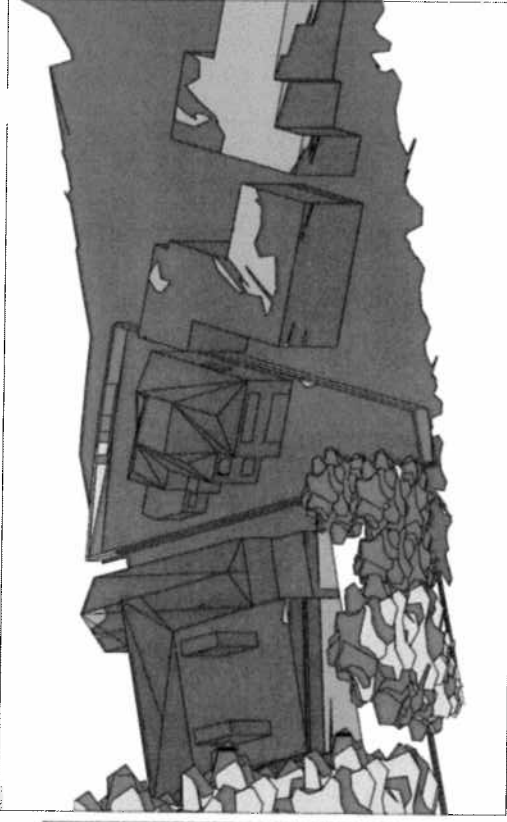
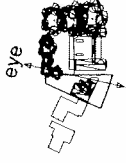
View time = 21 Mar 17:00
Site Latitude = 51.48
Longitude diff. = -0.45
Model Bearing = 168.00
Sun: azi = 255.96 alt = 10.42
Eye: azi = 180.00 alt = 50.00



Existing

Suncast image:

View time = 21 Mar 17:00
Site Latitude = 51.48
Longitude diff. = -0.45
Model Bearing = 168.00
Sun: azi = 255.96 alt = 10.42
Eye: azi = 180.00 alt = 50.00

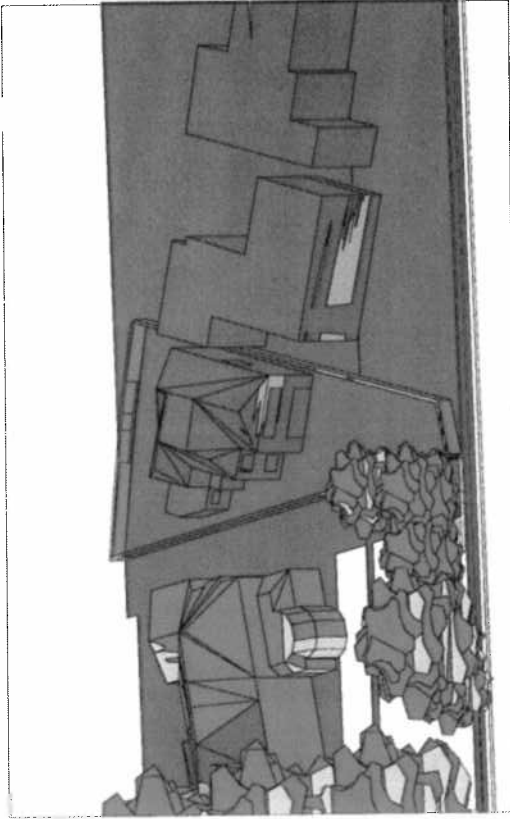
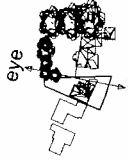


Proposed



Suncast image:

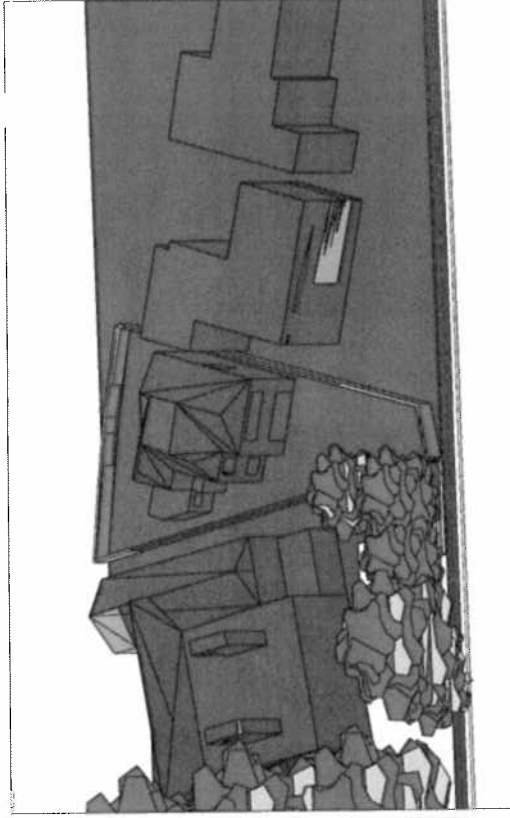
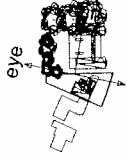
View time = 21 Mar 18:00
Site Latitude = 51.48
Longitude diff. = -0.45
Model Bearing = 168.00
Sun: azi = 267.86 alt = 1.18
Eye: azi = 180.00 alt = 50.00



Existing

Suncast image:

View time = 21 Mar 18:00
Site Latitude = 51.48
Longitude diff. = -0.45
Model Bearing = 168.00
Sun: azi = 267.86 alt = 1.18
Eye: azi = 180.00 alt = 50.00



Proposed