

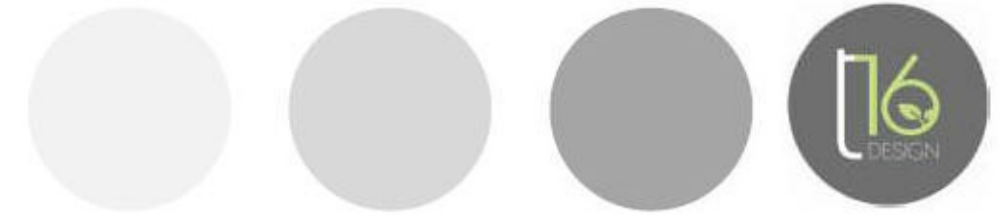
220 Milton Road, Cambridge

Daylight and Sunlight Assessment for Planning

Job No: 4046

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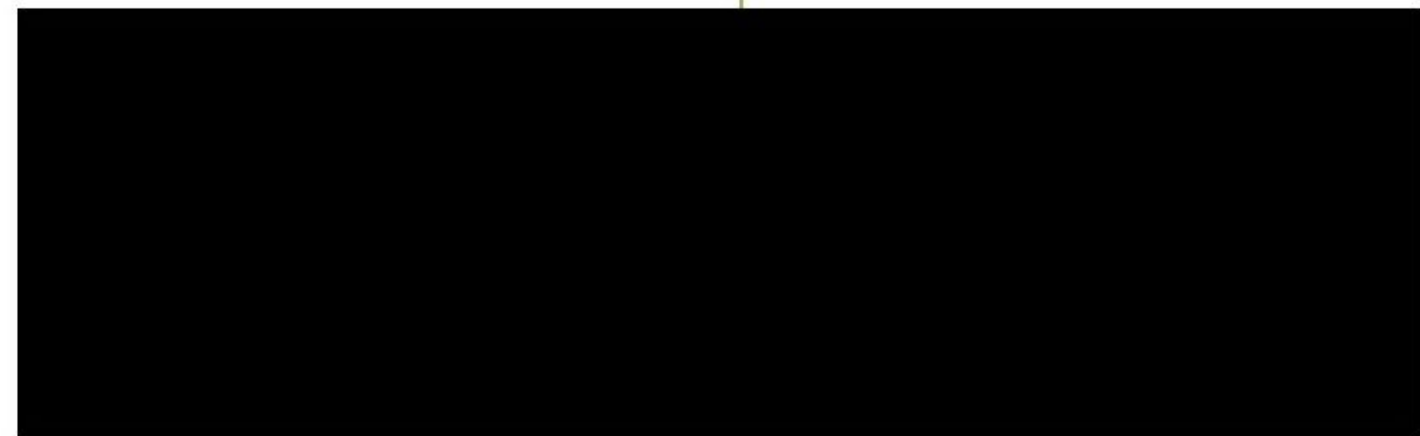
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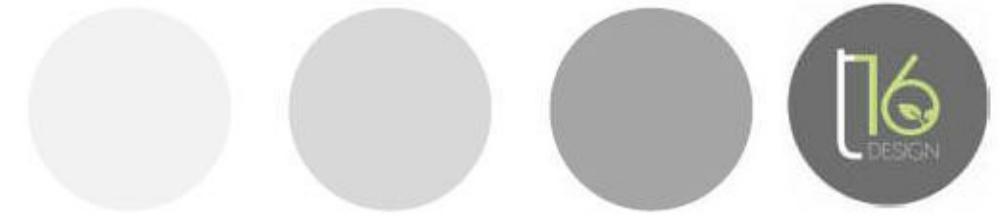
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1.0 Executive Summary

1.1 This daylight and sunlight assessment has been prepared to support a planning application for the proposed extension and conversion of the building at 220 Milton Road, Cambridge.

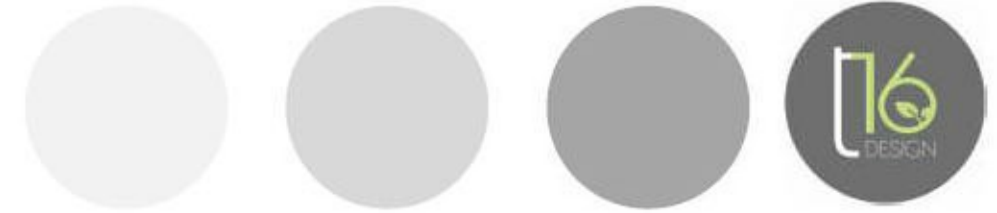
1.2 The report assesses the proposals in respect of daylight, sunlight and overshadowing matters, having regard to industry standard guidance. The report concludes that the proposal is acceptable and in accordance with planning policy requirements in relation to daylight and sunlight.

1.3 There is no existing specific National Planning Policy relating to the prospective impacts of developments on daylight and sunlight on their surrounding environment. However, the BRE Report 'Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice' is the established National guidance to aid the developer to prevent and/or minimise the impact of a new development on the availability of daylight and sunlight in the environs of the site. It has been developed in conjunction with daylight and sunlight recommendations in BS 8206: Part 2: 'Lighting for Buildings - Code of Practice for Daylighting'

1.4 This reference document is accepted as the authoritative work in the field on daylight, sunlight and overshadowing and is specifically referred to in many Local Authorities' planning policy guidance for daylighting. The methodology therein has been used in numerous lighting analyses and the standards of permissible reduction in light are accepted as the industry standards.

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





2.0 Methodology

2.1 For this analysis, we have undertaken the most common calculations for the change in daylight and sunlight to existing buildings, as recommended in BRE Digest 209. These are:

Vertical Sky Component (VSC) for daylight

Annual Probable Sunlight Hours and Winter Probable Sunlight Hours (WPSH) (APSH) for sunlight

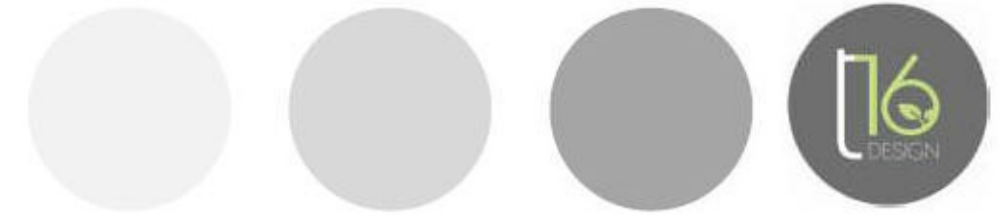
2.2 The VSC method measures the general amount of light available on the outside plane of the window as a ratio (%) of the amount of total unobstructed sky viewable following introduction of visible barriers such as buildings. The maximum value is just under 40% for a completely unobstructed vertical wall.

2.3 The VSC is calculated using computer simulation under a CIE overcast sky. This works by simulating the amount of visible sky from the centre point of each window. It is not affected by orientation and so all potentially affected windows are assessed.

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

2.5 APSH covers sunlight over the whole year and WPSH from September 21st to March 21st. The number of total available hours is calculated from a data file in the software, built up over a number of years of actual weather data records.

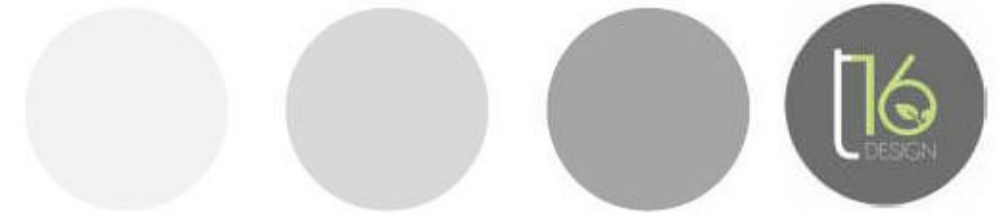
2.6 APSH can also be used to assess the impact on external spaces such as gardens. In this instance the garden to the most affected neighbour at 222 Milton Road has been assessed.



3.0 Existing Site and Proposal

- 3.1 The existing site is occupied by a 2 storey dwelling at the junction of Milton Road and Union Lane, Cambridge. The area comprises a mix of residential and commercial uses in a suburban and open-knit setting.
- 3.2 The proposal is for the extension and conversion of the existing building to provide residential accommodation comprising 6 self-contained flats.
- 3.3 The surrounding area is primarily residential and the effects on the dwelling to the north-east of the site are the primary consideration. Other dwellings are sufficiently distant from the proposal such that the effect will be negligible.
- 3.4 The form of the proposal has been established with a view to minimizing its impact on the existing neighbours.





4.0 Modelling the Site

4.1 The first stage of the analysis is to create the analysis model of the existing site condition and the proposal. This allows us to analyse the current situation and compare it with the proposal.

4.2 A 3D model has been created from the drawings provided by the Architect which is exported into the specialist daylight analysis software. Calculations are then run, for both existing and proposed scenarios.

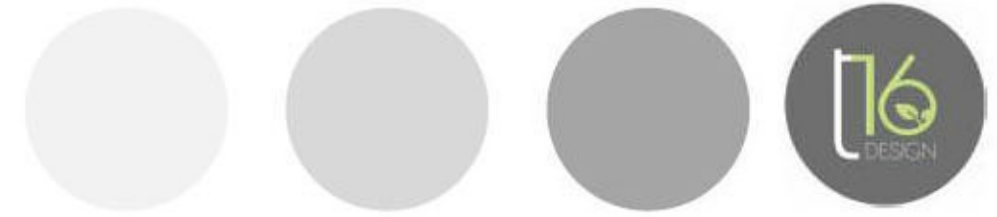
4.3 The outputs of those calculations can be exported numerically. Using the BRE guidance which gives recommended figures for the reduction in daylighting and sunlighting values, we can then establish the degree to which the proposal will impact on the occupiers of the adjacent dwellings.

4.4 Sufficient detail is added to the model for the analysis. In accordance with BRE recommendations, trees and foliage have been omitted from the calculations.

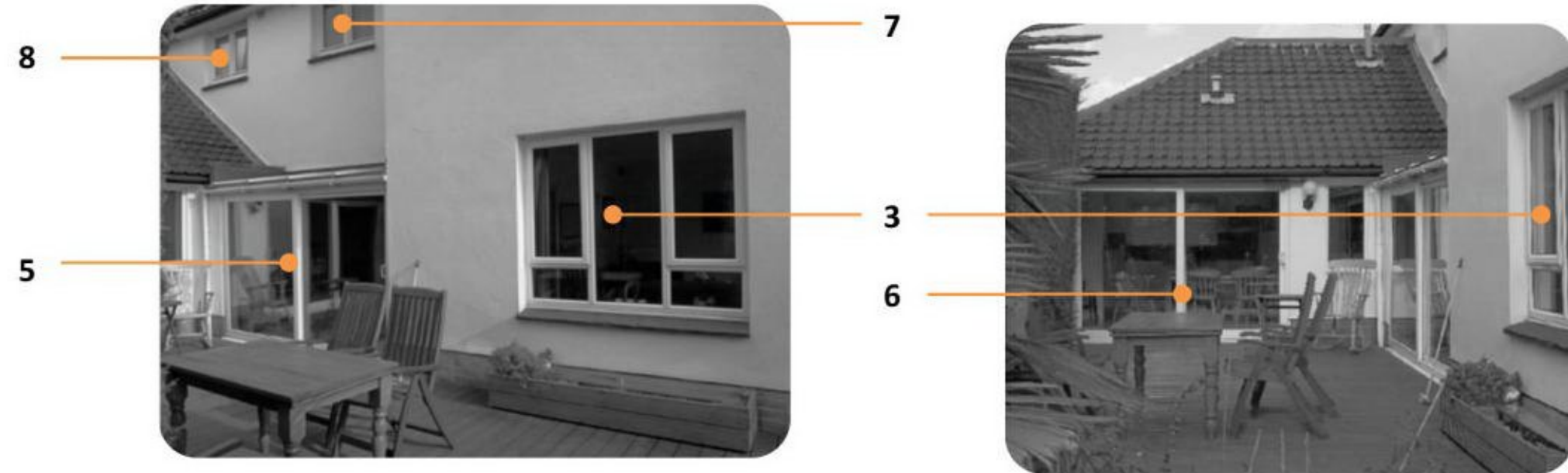
4.5 Drawn information on the properties has been provided to us by the design team in the form of 2D drawings giving the site as existing and proposed and photographs of the site and surroundings.

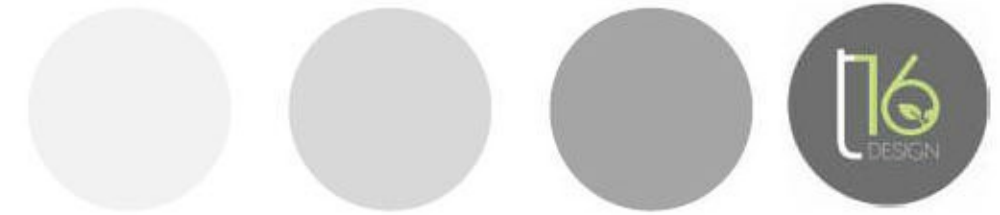
4.6 Although a full measured survey of the neighbouring windows and buildings has not been undertaken, a good level of detail on the site and neighbours has been made available for the analysis.

4.7 This report assessed the “as-built” proposal, which differs slightly from that which was assessed at the planning stage.



5.0 Window Schedules





6.0 Measurement Criteria

6.1 The reference document for this analysis, BRE Digest 209, gives the methodology for undertaking the calculations. It also provides benchmark figures for the acceptable reduction in the daylight on existing properties which might be affected by development.

6.2 Specifically, the guidance gives figures for the VSC and APSH, as a percentage reduction that is "permissible" for the effect on existing windows.

6.3 It is worth noting the following statement in the Guidance introduction:

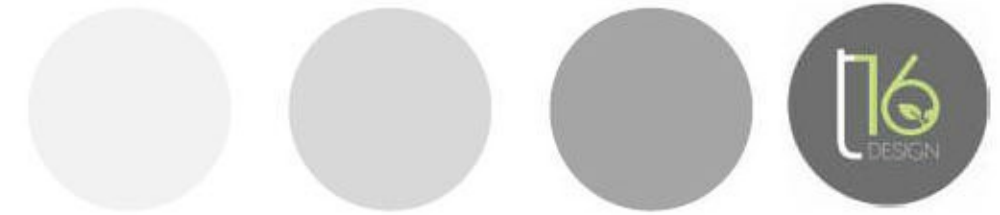
"While this guide supersedes the 1971 Department of the Environment document 'Sunlight and Daylight' which is now withdrawn, the main aim is the same - to help to ensure good conditions in the local environment, considered broadly, with enough sunlight and daylight on or between buildings for good interior and exterior conditions. The guide is intended for building designers and their clients, consultants and planning officials. The advice given here is not mandatory and this document should not be seen as an instrument of planning policy. Its aim is to help rather than constrain the developer.

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

6.4 In this regard, it is noted that the guidance is discretionary and should be applied flexibly, particularly since the BRE guidance applies nationally in both rural and urban areas.

6.5 The relevant BRE recommendations for daylight and sunlight are:

- **The Vertical Sky Component measured at the centre of a window should be no less than 27, or if reduced to below this, no less than 80% of its former value**
- **The window should receive at least 25% of available annual sunlight hours and more than 5% during the winter months (September 21st to March 21st), and 80% of its former value.**

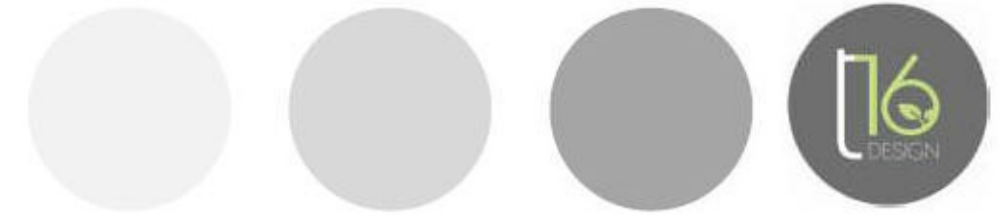


7.0 Daylight Results

7.1 The Vertical Sky Component has been calculated for each of the 8 assessed windows for both the existing and proposed conditions.

7.2 As can be seen in the results below, all of the assessed windows meet the 80% criteria for daylight. The scheme is therefore compliant with BRE guidelines for daylight and there will therefore be no noticeable impact on neighbouring residents in terms of daylight

Window	Vertical Sky Component		
	Existing	Proposed	% Retained
1	37.043	37.028	99.96%
2	39.07	39.07	100.00%
3	32.936	28.226	85.70%
4	24.214	19.811	81.82%
5	26.676	23.816	89.28%
6	33.58	32.551	96.94%
7	36.62	35.801	97.76%
8	37.001	36.029	97.37%



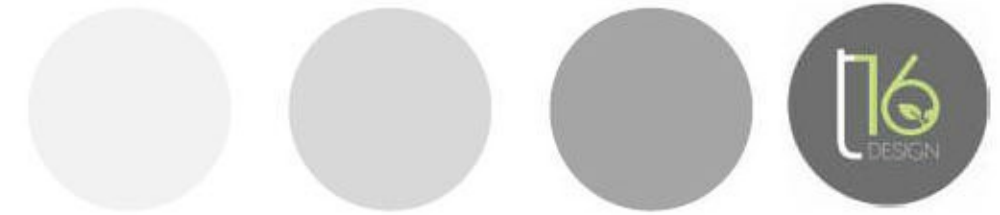
8.0 Sunlight Results

8.1 BRE guidance states that only windows which face within 90° of due south need be assessed for sunlight provision. In this instance, all 8 windows fall into this category.

8.2 The Annual Probable Sunlight Hours and Winter Probable Sunlight Hours have been calculated for each of these windows for both the existing and proposed conditions using the methodology described previously. The results of this are given below.

8.3 As can be seen, all windows retain in excess of 80% of existing levels and so the scheme is compliant with BRE guidance for sunlight to neighbouring windows.

Window	APSH - Whole Year			APSH - Winter Months		
	Existing %	Proposed %	% of Existing	Existing %	Proposed %	% of Existing
1	70.69%	70.69%	100.00%	31.35%	31.35%	100.00%
2	74.85%	74.85%	100.00%	34.64%	34.64%	100.00%
3	63.67%	56.79%	89.20%	25.22%	23.05%	91.41%
4	48.96%	41.86%	85.51%	22.12%	18.19%	82.23%
5	48.22%	39.22%	81.33%	21.87%	17.52%	80.09%
6	54.44%	53.71%	98.66%	17.42%	16.69%	95.78%
7	65.24%	64.36%	98.65%	26.69%	25.83%	96.78%
8	69.04%	68.22%	98.82%	30.30%	29.68%	97.95%



9.0 Neighbouring Garden

9.1 Residential amenity spaces are generally assessed using the sunlight hours test, but only on March 21st. The guidance describes a well lit space as being one which receives at least 2 hours of direct sunlight on this date over 50% of its area.

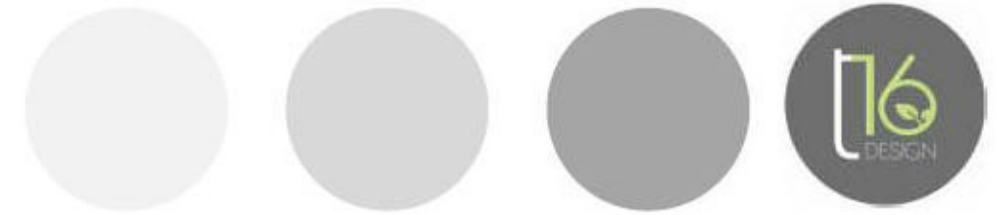
9.2 BRE guidance also uses the "80%" rule for this test, whereby the effects are considered acceptable if the remaining sunlight is in excess of 80% of the existing level. This clause applies if the space is reduced to less than 50% of the area well sunlit.

9.3 The amenity space of the dwelling to the east of the site was assessed using this method. The results are presented below. As can be seen, the space meets the BRE guidance by virtue of retaining 80% of its current value. In fact there is virtually no reduction in sunlight.



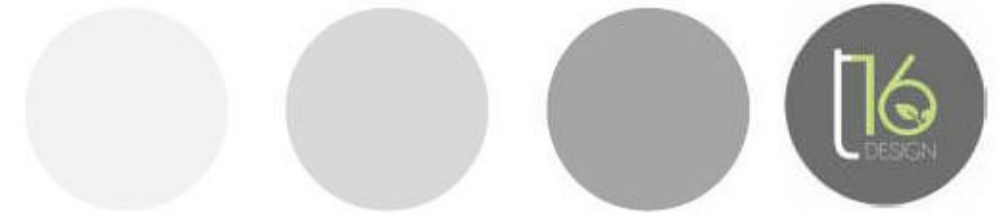
G1
Site
Location

Garden	Existing (%)	Proposed (%)	% Retained
G1	96.5	94.6	98.03%



10.0 Conclusions

- 10.1 Using industry standard methodology, we have made numerical analyses to ascertain the effects of the development at 220 Milton Road and the levels of change in daylight and for the windows and gardens of the neighbouring property.
- 10.2 The main criteria used in this analysis to show compliance are the Vertical Sky Component and Annual Probable Sunlight Hours tests
- 10.3 As has been shown, the effect on VSC is within the 80% guidance value in all cases. There will therefore be no adverse impact on neighbouring residents in terms of daylight.
- 10.4 In terms of sunlight, all windows and gardens retain in excess of 80% of their current values and so the scheme accords with BRE guidance in relation to sunlight.
- 10.5 The neighbouring garden retains virtually all of its current levels of sunlight hours on March 21st.
- 10.6 There will therefore be no adverse impact on sunlight receipt to neighbouring properties.
- 10.7 From a planning perspective therefore, it is the conclusion of this report that the proposed development is entirely acceptable in planning terms without adverse impact on the neighbours.



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