Appendix C: Daylight, Sunlight, Overshadowing, Light Pollution and Solar Glare

Environmental Statement

Volume III

Principles of Daylight and Sunlight

Background

The quality of amenity for buildings and open spaces is increasingly becoming the subject of concern and attention for many interested parties.

Historically the Department of Environment provided guidance of these issues and, in this country, this role has now been taken on by the Building Research Establishment (BRE), the British Standards Institution (BSI) and the Chartered Institute of Building Services Engineers (CIBSE). Fortunately they have collaborated in many areas to provide as much unified advice as possible in these areas.

Further emphasis has been placed on these issues through the European Directive that require Environmental Impact Assessments (EIA's) for large projects. Part of these assessments include the consideration of the micro-climate around and within a proposal. The EIA requires a developer to advise upon, amongst other matters, the quality of and impact to daylight, sunlight, overshadowing, solar glare and light pollution.

It is also clear, particularly through either adopted or emerging Unitary Development Plans (UDP's), that local Authorities take this matter far more seriously than they previously did. There are many instances of planning applications being refused due to impact on daylight and sunlight to neighbouring properties and proportionately more of these refusals are appealed by applicants.

Where developers are seeking to maximise their development value, it is often in the area of daylight and sunlight issues that they may seek to 'push the boundaries'. Local Authorities vary in their attitude of how flexible they can be with worsening the impact on the amenity enjoyed by neighbouring owners. In city centres, where there is high density, it can be the subject of hot debate as to whether further loss of amenity is material or not. There are many factors that need to be taken into account and therefore each case has to be considered on its own merits. Clearly, though, there are governing principles which direct and inform on the approach that is taken.

These principles are effectively embodied within the UDP's and the guidance they expressly rely upon. For example, in central London, practically all of the Local Authorities expressly state they will not permit or encourage developments which create a material impact to neighbouring buildings or amenity areas. Often the basis on what is constituted as 'material' will be derived specifically from the BRE Guidelines. The guidelines were produced in 1991, as a direct commission from the Department of the Environment, and entitled 'Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice'.

These guidelines are normally the only official document used by local Authorities and consequently they are referred to extensively by designers, consultants and planners. Whilst they are expressly not mandatory and state that they should not be used as an instrument of planning policy, they are heavily relied upon as they advise on the approach, methodology evaluation of impact in daylight and sunlight matters.

The BRE Guidelines

The BRE give criteria and methods for calculating daylight, and sunlight and to some degree overshadowing and through that approach define what they consider as a material impact. As these different methods of calculation vary in their depth of analysis, it is often arguable as to whether the BRE definition of 'material' is applicable in all locations and furthermore if it holds under the different methods of calculation.

As the majority of the controversial daylight and sunlight issues occur within city centres these explanatory notes focus on the relevant criteria and parts of the Handbook which are applicable in such locations.

In the Introduction of 'Site Layout Planning for Daylight and Sunlight' it states that:-

> *"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 designer. Although it gives numerical guidelines, these should be interpreted flexibly because natural lighting is only one of many factors in site layout design (see Section 5). In special circumstances the developer or Planning Authority may wish to use different target values. For example, in an historic city centre a higher degree of obstruction may be unavoidable if new developments are to match the height and proportions of existing buildings".*

Again, the second paragraph of Chapter 2.2 of the document states:-

> *'Note that numerical values given here are purely advisory. Different criteria may be used, based on the requirements for daylighting in an area viewed against other site layout constraints'.*

The reason for including these statements in the Report is to appreciate that when quoting the criteria suggested by the BRE, they should not necessarily be considered as appropriate. However, rather than suggest alternative values, consultants in this field often remind local Authorities that this approach is supportable and thus flexibility applied.

MEASUREMENT AND CRITERIA FOR DAYLIGHT & SUNLIGHT

The BRE handbook provides two main methods of measurement for calculating daylight which we use for the assessment in our Reports. In addition, in conjunction with the BSI and CIBSE it provides a further method in Appendix C of the Handbook. In relation to sunlight only one method is offered for calculating sunlight availability for buildings. There is an overshadowing test offered in connection with open spaces.

DAYLIGHT

In the first instance, if a proposed development falls beneath a 25° angle taken from a point two metres above ground level, then the BRE say that no further analysis is required as there will be adequate skylight (i.e. sky visibility) availability.

The three methods for calculating daylight are as follows:

(a) Vertical Sky Component (VSC)

(b) No Sky Contours (NSC)

(c) Average Daylight Factor (ADF)

Each are briefly described below.

(a) Vertical Sky Component

Methodology

This is defined in the Handbook as:-

"Ratio of that part of illuminance, at a point on a given vertical plane, that is received directly from a CIE Standard Overcast Sky, to illuminate on a horizontal plane due to an unobstructed hemisphere of this sky."

"Note that numerical values given here are purely advisory. Different criteria may be used, based on the requirements for daylighting in an area viewed against other site layout constraints".

The ratio referred to in the above definition is the percentage of the total unobstructed view that is available, once obstructions, in the form of buildings (trees are excluded) are placed in front of the point of view. The view is always taken from the centre of the outward face of a window.

This statement means, in practice, that if one had a totally unobstructed view of the sky, looking in a single direction, then just under 40% of the complete hemisphere would be visible.

The measurement of this vertical sky component is undertaken using two indicators, namely a skylight indicator and a transparent direction finder. Alternatively a further method of measuring the vertical sky component, which is easier to understand both in concept and analysis, is often more precise and can deal with more complex instructions, is that of the Waldram diagram.

The point of reference is the same as for the skylight indicator. Effectively a snap shot is taken from that point of the sky in front of the window, together with all the relevant obstructions to it, i.e. the buildings.

An unobstructed sky from that point of reference would give a vertical sky component of 39.6%, corresponding to 50% of the hemisphere, and therefore the purpose of the diagram is to discover how much sky remains once obstructions exist in front of that point.

The diagram comes on an A4 sheet (landscape) and this sheet represents the unobstructed sky, which in one direction equates to a vertical sky component of 39.6%. The obstructions in front of a point of reference are then plotted onto the diagram and the resultant area remaining is proportional to the vertical sky component from that point.

Criteria

The BRE Handbook provides criteria for:

(a) New Development

(b) Existing Buildings

A summary of the criteria for each of these elements is given and these are repeated below:-

New Development

Summary

In general, a building will retain the potential for good interior diffuse daylighting provided that on all its main faces:-

(a) no obstruction, measured in a vertical section perpendicular to the main face, from a point 2m above ground level, subtends an angle of more than 25 degrees to the horizontal;

(b) If (a) is not satisfied, then all points on the main face on a line 2m above ground level are within 4m (measured sideways) of a point which has a vertical sky component of 27% or more.

Existing Buildings

Summary

If any part of a new building or extension measured in a vertical section perpendicular to a main window wall of an existing building, from the centre of the lowest window, subtends an angle of more than 25 degree to the horizontal, then the diffuse daylighting of the existing building may be adversely affected. This will be the case if either:

(a) the vertical sky component measured at the centre of an existing main window is less than 27%, and less than 0.8 times its former value;

or

(b) the area of the working plane in a room which can receive direct skylight is reduced to less than 0.8 times its former value.

The VSC calculation has, like the other two methods, both advantages and disadvantages. In fact they are tied together. It is a quick simple test which looks to give an early indication of the potential for light. However, it does not, in any fashion, indicate the quality of actual light within a space. It does not take into account the window size, the room size or room use. It helps by indicating that if there is an appreciable amount of sky visible from a given point there will be a reasonable potential for daylighting.

(b) No Sky Contours

This is the part (b) of the alternative method of analysis which is given under the Vertical Sky Component heading in this Appendix. It is similar to the VSC approach in that a reduction of 0.8 times in the area of sky visibility at the working plane may be deemed to adversely affect daylight. It is however, very dependent upon knowing the actual room layouts or having a reasonable understanding of the likely layouts. The contours are also known as daylight distribution contours. They assist in helping to understand the way the daylight is distributed within a room and the comparisons of existing and limitations of proposed circumstances within neighbouring properties. Like the VSC method, it relates to the amount of visible sky but does not consider the room use in its criteria, it is simply a test to assess the change in position of the No Sky Line, between the existing and proposed situation. It does take into account the number and size of windows to a room, but does not give any quantative or qualative assessment of the light in the rooms, only where sky can or cannot be seen.

(c) Average Daylight Factor

This is defined in Appendix H of the BRE Document as:

"Ratio of total daylight flux incident on the working plane, expressed as a percentage of the outdoor illuminance on a horizontal plane due to an unobstructed CIE Standard Overcast Sky."

This factor considers interior daylighting to a room and therefore is a more accurate indication of available light in a given room, if details of the room size and use are available.

Criteria

The British Standard, BS8206 Part II gives the following recommendations for the average daylight factor (ADF) in dwellings.

The BRE Handbook provides the formula for calculating the average daylight factor. If the necessary information can be obtained to use the formula then this criteria would be more useful.

Room	**Percentage**
Kitchen	2%
Living Rooms	1.5%
Bedrooms	1%

It is sometimes questioned whether the use of the ADF is valid when assessing the impact on neighbouring buildings. Firstly, it is often the case that room layouts and uses may not have been established with certainty. Additionally this method is not cited in the main body of text in the BRE Guidelines but only in Appendix C of that document. It is however, the principal method used by both the British Standard and CIBSE in their detailed daylight publications with which the BRE guide recommends that it should be read.

The counter-argument to this view is that whilst room uses and layouts may be not definitely established, reasonable assumptions can easily be made to give sufficient understanding of the likely quality of light. Building types and layouts for certain buildings, particularly residential, are often similar. In these circumstances reasonable conclusions can be drawn as to whether a particular room will have sufficient light against the British Standards. In addition, the final result is less sensitive to changes in the room layout that the No Sky Contour method as it is an average and this element represents only one of the input factors. It is in cases where rooms sizes have been assumed a more reliable indicator than the No Sky Line method.

Clearly if a room which is being designed for a new development is deemed to have sufficient light against the British Standards, then it should equally follow for a room assessed in a neighbouring existing building.

The average daylight factor considers the light within the room behind the fenestration which serves it. The latter is therefore likely to be more accurate because it takes into account the following:-

a) All the windows serving the room in question.

b) The room use.

c) The size and layout of the room.

d) The finishes of the room surfaces.

SUMMARY

The VSC (which forms part of the ADF formula) is helpful as an initial first guide, especially where access to the rooms in question is not available. Where the room layouts and uses are established or can be reasonably estimated we consider it appropriate to analyse the average daylight factor as well as the vertical sky component.

SUNLIGHT

(a) Annual Probable Sunlight Hours (APSH) method

Sunlight is measured in the Handbook in a similar manner to the first method given for measuring the VSC.

A separate indicator is used which contains 100 spots, each representing 1% of annual probable sunlight hours.

The BRE calculated that where no obstructions exist, the total annual probable sunlight hours would amount to 1486. Therefore, each dot on the indicator equates to 14.86 hours of the total annual probable sunlight. Again, to use this indicator the obstructions need to be scaled down and overlaid onto the sunlight indicator.

Those spots which remain uncovered by the scaled obstructions are counted and this gives the percentage of total annual probable sunlight hours for that particular reference point. Again, like the VSC, the reference point is taken to be the centre of the window.

Criteria

Again, the BRE Handbook gives criteria for:

(a) New Development

(b) Existing Buildings

A summary is given in the handbook on page 12 and this is as follows:-

New Development

Summary

In general, a dwelling or non-domestic building which has a particular requirement for sunlight, will appear reasonably sunlit provided that:

(a) at least one main window wall faces within 90 degrees of due south;

and

(b) on this window wall, all points on a line 2m above ground level are within 4m (measured sideways) of a point which receives at least a quarter of annual probable sunlight hours, including at least 5% of annual probable sunlight hours during the winter months, between 21 September and 21 March.

Existing Buildings

Summary

If a living room of an existing dwelling has a main window facing within 90 degrees of due south, and any part of a new development subtends an angle of more than 25 degrees to the horizontal measured from the centre of the window in a vertical section perpendicular to the window, then the sunlighting of the existing dwelling may be adversely affected. This will be the case if a point at the centre of the window, in the plane of the inner window wall, receives in the year less than one quarter of annual probable sunlight hours including at least 5% of annual probable sunlight hours between 21 September and 21 March and less than 0.8 times its former sunlight hours during either period.

It will be noted that the BRE clearly separate summer from winter and indicate that a 20% reduction for either may be material. The Handbook also states that *"To find out whether an existing building still receives enough sunlight, the British Standard can be used. It is suggested that all main living rooms of dwellings and conservatories, should be checked if they have a window facing within 90º of due south. Kitchens and bedrooms are less important, although care should be taken not to block too much sun ……..... The British Standard recommends that a 'window reference point', at the centre of each window on the plane of the inside surface of the wall, should be used for the calculations"* and thus this practice gives greater consideration to the effect on the main window of a living room.

(b) Area of Permanent Shadow

The BRE Handbook, 'Site Layout Planning for Daylight and Sunlight' also provides criteria for open spaces.

In particular it gives guidance for calculating any areas of open space that may be in permanent shadow on 21 March. There is no criteria for the overshadowing of buildings.

In summary the BRE document states the following:-

"It is suggested that, for it to appear adequately sunlit throughout the year, no more than two-fifths and preferably no more than a quarter of any garden or amenity area should be prevented by buildings from

receiving any sun at all on 21 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 some sun on 21 March is less than 0.8 times its former value, then the loss of sunlight is likely to be noticeable".

In relation to general overshadowing we often provide, where appropriate, an hourly record for existing and proposed situations, the effect of overshadowing on December 21st, March 21st and June 21st.

For open spaces the permanent shadow criteria is naturally adopted but this offers limited understanding of how a space will feel or appear generally.

CITY CENTRES

The introduction of the BRE document gives the example of *'historic city centres'* being a case where there is the need for flexibility and altering the target values for criteria when appropriate, to reflect other site and layout constraints.

To explain why it is appropriate to alter these values, one needs to go further into the BRE Handbook to examine how the criteria for the vertical sky component criteria was determined and the reason therefore for varying the criteria in City Centres.

Appendix G of the document is dedicated to the use of alternative values and, it also demonstrates the manner in which the criteria for skylight was determined for the Summary given above, i.e. the need for 27% vertical sky component for adequate daylighting.

This figure of 27% was achieved in the following manner:

A theoretical road was created with two storey terraced houses upon either side, approximately twelve metres apart. The houses have windows at ground and first floor level, and a pitched roof with a central ridge.

Thereafter, a reference point was taken at the centre of a ground floor window of one of the properties and a line was drawn from this point to the central ridge of the property on the other side of the road. The angle of this line equated to 25 degrees (the 25 degrees referred to in the summaries given with reference to the criteria for skylight).

This 25 degrees line obstructs 13% of the totally unobstructed sky available, leaving a resultant figure of 27% which is deemed to give adequate daylighting. This figure of 27% is the recommended criteria referred to earlier in this report. It will be readily appreciated that in a City Centre, this kind of urban form is unlikely and is

impractical. It would therefore be inappropriate to consider values for two storey terraced housing in a City Centre.

It is therefore sometimes necessary to apply different target criteria or at least acknowledge that the recommendations in the BRE cannot be achieved.

In addition, it is often the case that residential buildings within city centres are served by balconies. Balconies restrict lighting levels even more and thus if they were to be rigidly taken into account, a neighbouring proposal would be artificially and inappropriately constrained. This view is supported by the BRE and is equally another reason for flexible and sensible interpretation of the guidelines.

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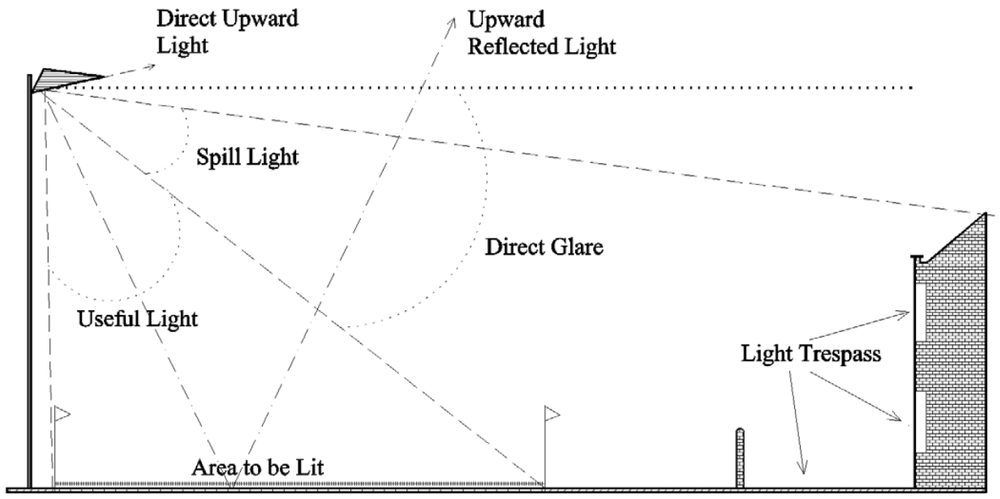
GUIDANCE NOTES FOR THE REDUCTION OF LIGHT POLLUTION

ALL LIVING THINGS adjust their behaviour according to natural light. Man's invention of artificial light has done much to safeguard and enhance our night-time environment but, if not properly controlled, **obtrusive light** (commonly referred to as light pollution**)** can present serious physiological and ecological problems.



Light pollution, whether it keeps you awake through a bedroom window or impedes your view of the night sky, is a form of pollution and could be substantially reduced without detriment to the lighting task.

Sky glow, the brightening of the night sky above our towns and cities, **Glare**, the uncomfortable brightness of a light source when viewed against a dark background, and **Light Trespass**, the spilling of light beyond the boundary of the property on which the light source is located, are all forms of obtrusive light. This is not only a nuisance, it wastes electricity and thereby large sums of money, but more importantly it helps destroy the Earth's finite energy resources, resulting in the unnecessary emissions of greenhouse gases.

Listed below are some easy ways to reduce the problems of unnecessary, obtrusive light:

[Al] Do not "over" light. This is a major cause of light pollution and is a waste of money. There are published Standards for most lighting tasks. Organisations from which full details of these standards can be obtained are given on the last page of this leaflet.

[A2] Switch off lights when not required for safety, security or enhancement of the night-time scene. In this respect one can introduce the concept of a curfew, i.e. a period in which more restrictive controls are applied to obtrusive light. In all new developments there is scope for Local Planning Authorities (LPA's) to impose conditions relating to curfew hours in determining planning applications. For instance, the LPA may determine that non- essential lighting, such as decorative floodlighting, should be switched off between 23.00hours and dawn. In the case of new non-residential developments, LPA's are encouraged to impose such curfews. In determining applications for illuminated advertisements, it is recommended that LPA's impose similar curfew hours. The attachment of domestic security and decorative lighting to residential buildings often does not require planning permission. However, as the floodlights are operational throughout the night it is considered that the after curfew levels of lighting control shown in Table 1 should be used at all times.

[A3] Use specifically designed lighting equipment that minimises the upward spread of light near to, or above the horizontal. Care should be taken when selecting luminaires to ensure that the units chosen will reduce spill light and glare to a minimum. The use of luminaires with double-asymmetric beams designed so that the front glazing is kept at or near parallel to the surface being lit will assist in the reduction of glare provided the units are correctly aimed. Similarly, modern well-controlled projector type luminaires, which can be aimed very precisely, can give an excellent cut-off beyond the lit area so reducing spill light and glare.

[A4] Keep glare to a minimum by ensuring that the main beam angle of all lights directed towards any potential observer is kept below 70^{o}**.** Higher mounting heights allow lower main beam angles, which can assist in reducing glare. In areas with low ambient lighting levels, glare can be very obtrusive and extra care should be taken when positioning and aiming lighting equipment. When lighting vertical structures such as advertising signs direct light downwards, wherever possible, to illuminate them not upwards. If there is no alternative to up lighting, then the use of shields, baffles and louvres will help reduce spill light around and over the structure to a minimum.

[A5] For road lighting installations, light near to and above the horizontal should be minimised to reduce glare and visual intrusion (Note ULRs in Table 1). The use of full horizontal cut off luminaires installed at 0^{o} uplift will minimise visual intrusion within the landscape as well as upward light. However in many urban locations luminaires fitted with a shallow bowl providing good control of light near to and above the horizontal can a provide a satisfactory solution whilst maximising the spacing of the luminaires.

ENVIRONMENTAL ZONES:
It is recommended that in their Development Plans, Local Planning Authorities specify the following environmental zones for exterior lighting control.

	Category	Examples
E1:	**Intrinsically dark areas**	National Parks, Areas of Outstanding Natural Beauty, etc
E2:	**Low district brightness areas**	Rural or small village locations
E3:	**Medium district brightness areas**	Small town centres or urban locations
E4:	**High district brightness areas**	Town/city centres with high levels of night-time activity

Where an area to be lit lies on the boundary of two zones or can be observed from another zone, the obtrusive light limitation values used should be those applicable to the most rigorous zone.

TABLE 1 – OBTRUSIVE LIGHT LIMITATIONS FOR EXTERIOR LIGHTING INSTALLATIONS

Environmental Zone	Sky Glow ULR [Max %]	Light into Windows E_v [Lux] (1)		Source Intensity I [kcd] (2)		Building Luminance Before curfew (3)	
		Before curfew	After curfew	Before curfew	After curfew	Average, L [cd/m^2]	Maximum L [cd/m^2]
E1	**0**	**2**	**1***	**0**	**0**	**0**	**0**
E2	**2.5**	**5**	**1**	**20**	**0.5**	**5**	**10**
E3	**5.0**	**10**	**2**	**30**	**1.0**	**10**	**60**
E4	**15.0**	**25**	**5**	**30**	**2.5**	**25**	**150**

Where: **ULR = Upward Light Ratio of the Installation** and is the maximum permitted percentage of luminaire flux for the total installation that goes directly into the sky. (formerly UWLR)
E_v = Vertical Illuminance in Lux normal to glazing
I = Light Intensity in Candelas
L = Luminance in Candelas per Square Metre

Notes:

(1) **Light Into Windows** – These values are suggested maximums and need to take account of existing light trespass at the point of measurement.

***** Acceptable from public road lighting installations **ONLY.**

(2) **Source Intensity –** This applies to each source in the potentially obtrusive direction, *outside* of the area being lit. The figures given are for general guidance only and for some large sports lighting applications with limited mounting heights, may be difficult to achieve. If the aforementioned recommendations are followed then it should be possible to further lower these figures.

(3) **Building Luminance** – This should be limited to avoid over lighting, and relate to the general district brightness. In this reference building luminance is applicable to buildings directly illuminated as a night-time feature as against the illumination of a building caused by spill light from adjacent floodlights or floodlights fixed to the building but used to light an adjacent area.

These limitations may be supplemented by a Local Planning Authorities own planning guidance for exterior lighting installations and you are therefore recommended to check with the Local Planning Authority before designing or installing any exterior lighting.

RELEVANT PUBLICATIONS AND STANDARDS:

British Standards:	BS 5489	Road Lighting.
Countryside Commission/DOE		Lighting in the Countryside: Towards good practice (1997)
CIBSE Lighting Guides:	LC1	Code for interior lighting (1994)
	LG1	The Industrial Environment (1989)
	LG4	Sports (1990)
	LG6	The Exterior Environment (1992)
CIE Publications:	01	Guide lines for minimizing Urban Sky Glow near Astronomical Observatories (1980)
	83	Guide for the lighting of sports events for colour television and film systems (1989)
	92	Guide for floodlighting (1992)
	115	Recommendations for the lighting of roads for motor and pedestrian traffic (1995)
	126	Guidelines for minimizing Skyglow (1997)
	129	Guide for lighting exterior work areas (1998)
	136	Guide to the lighting of urban areas (2000)
Department of Transport		Road Lighting and the Environment (1993)
ILE Technical Reports:	TR 5	Brightness of Illuminated Advertisements (1991)
	CP 2	Lasers, Festival and Entertainment Lighting Code (1995)
	TR24	A Practical Guide to the Development of a Public Lighting Policy for Local Authorities (1999)
		Domestic Security Lighting, Friend or Foe
ILE/CIBSE		Lighting the Environment - A guide to good urban lighting

USEFUL ADDRESSES:

British Astronomical Association (BAA)
Burlington House
Piccadilly
London, WIV 9AG
Tel: 020 7734 4145

British Standards Institution (BSI)
389 Chiswick High Road
London, W4 4AL.
Tel: 020 8996 9001
Fax: 020 8996 7001

Commission for Architecture and the Built Environment (CABE)
7 St. James's Square
London, SWIY 4JU
Tel: 020 7839 6537

Council for the Protection of Rural England (CPRE)
Warwick House
25 Buckingham Palace Road
London, SW1W OPP
Tel: 020 7976 6433
Fax: 020 7976 6373

Department of Environment, Transport and the Regions (DETR)
Publication Sales Unit
Government Building
Block 3, Spur 2
Lime Grove
Eastcote, HA4 8SE

English Heritage
23 Saville Row
London, W1X 1AB
Tel: 020 7973 3000

International Commission on Illumination (CIE)
Central Bureau
Kegelgasse 27
A-1030 Wien, AUSTRIA
Tel: (00l) 431 714 3187
Fax: (001) 431 713 0838

Lighting Industry Federation (LIF)
207 Balham High Road,
London, SW17 7BQ.
Tel: 020 8675 5432,
Fax: 020 8673 5880

Royal Town Planning Institute (RTPI)
26 Portland Place,
London W1N 4BE.
Tel: 020 7636 9107

Society of Light and Lighting
222 Balham High Road,
London, SWl2 9BS
Tel: 020 8675 5211,
Fax: 020 8675 5449

Sports England
16 Upper Woburn Place
London, WC1H 0QP
Tel: 020 7273 1500

The Countryside Agency
Dacra House, 19 Dacra Street
London, SW1H 0DH
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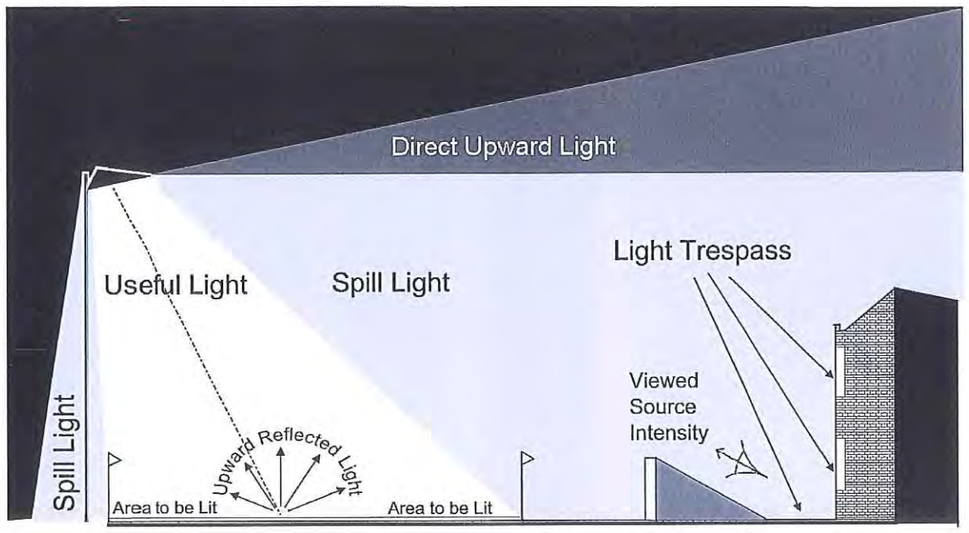
GUIDANCE NOTES FOR THE REDUCTION OF OBTRUSIVE LIGHT

ALL LIVING THINGS adjust their behaviour according to natural light. Man's invention of artificial light has done much to enhance our night-time environment but, if not properly controlled, **obtrusive light** (commonly referred to as light pollution) can present serious physiological and ecological problems.

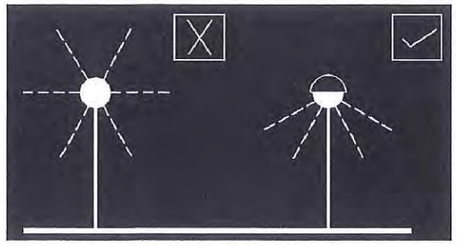
Obtrusive Light, whether it keeps you awake through a bedroom window or impedes your view of the night sky, is a form of pollution and can be substantially reduced without detriment to the lighting task.

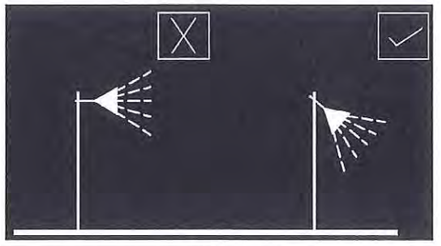
Sky glow, the brightening of the night sky above our towns, cities and countryside, **Glare** the uncomfortable brightness of a light source when viewed against a dark background, and **Light Trespass**, the spilling of light beyond the boundary of the property or area being lit, are all forms of obtrusive light which may cause nuisance to others, waste money and electricity and result in the unnecessary emissions of greenhouse gases. Think before you light. Is it necessary? What effect will it have on others? Will it cause a nuisance? How can I minimise the problem?



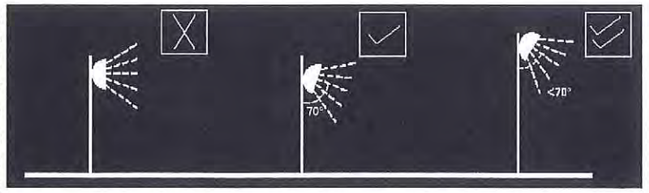
Do not "over" light. This is a major cause of obtrusive light and is a waste of energy. There are published standards for most lighting tasks, adherence to which will help minimise upward reflected light. Organisations from which full details of these standards can be obtained are given on the last page of this leaflet.

Dim or switch off lights when the task is finished. Generally a lower level of lighting will suffice to enhance the night time scene than that required for safety and security.



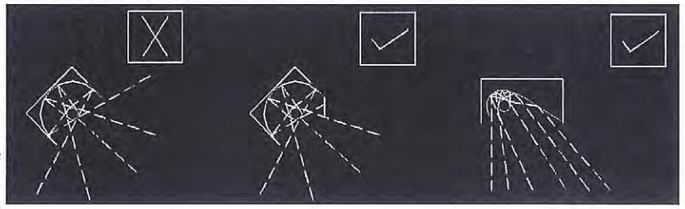


Use specifically designed lighting equipment that minimises the upward spread of light near to and above the horizontal. Care should be taken when selecting luminaires to ensure that appropriate units are chosen and that their location will reduce spill light and glare to a minimum. Remember that lamp light output in LUMENS is not the same as lamp wattage and that it is the former that is important in combating the problems of obtrusive light

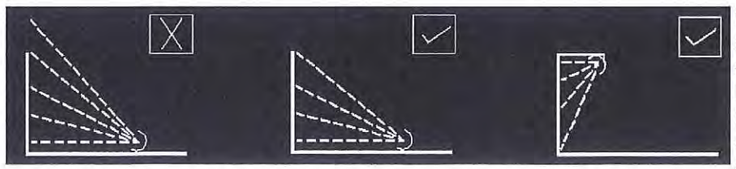


Keep glare to a minimum by ensuring that the main beam angle of all lights directed towards any potential observer is not more than 70°. Higher mounting heights allow lower main beam angles, which can assist in reducing glare. In areas with low ambient lighting levels, glare can be very obtrusive and extra care should be taken when positioning and aiming lighting equipment. With regard to domestic security lighting the ILE produces an information leaflet GN02 that is freely available from its web site.

The UK Government will be providing an annex to PPS23 Planning and Pollution Control, specifically on obtrusive light. However many Local Planning Authorities (LPA's) have already produced, or are producing, policies that within the new planning system will become part of the local development framework. For new developments there is an opportunity for LPA's to impose planning conditions related to external lighting, including curfew hours.



For sports lighting installations (see also design standards listed on Page 4) the use of luminaires with double-asymmetric beams designed so that the front glazing is kept at or near parallel to the surface being lit should, if correctly aimed, ensure minimum obtrusive light. In most cases it will also be beneficial to use as high a mounting height as possible, giving due regard to the daytime appearance of the installation. The requirements to control glare for the safety of road users are given in Table 2.



When lighting vertical structures such as advertising signs direct light downwards, wherever possible. If there is no alternative to up-lighting, as with much decorative lighting of buildings, then the use of shields, baffles and louvres will help reduce spill light around and over the structure to a minimum.

For road and amenity lighting installations, (see also design standards listed on Page 4) light near to and above the horizontal should normally be minimised to reduce glare and sky glow (Note ULRs in Table 1). In sensitive rural areas the use of full horizontal cut off luminaires installed at 0° uplift will, in addition to reducing sky glow, also help to minimise visual intrusion within the open landscape. However in many urban locations, luminaires fitted with a more decorative bowl and good optical control of light should be acceptable and may be more appropriate.

ENVIRONMENTAL ZONES:
It is recommended that Local Planning Authorities specify the following environmental zones for exterior lighting control within their Development Plans.

Category	Examples	
E1:	Intrinsically dark landscapes	National Parks, Areas of Outstanding Natural Beauty, etc
E2:	Low district brightness areas	Rural, small village, or relatively dark urban locations
E3:	Medium district brightness areas	Small town centres or urban locations
E4:	High district brightness areas	Town/city centres with high levels of night-time activity

Where an area to be lit lies on the boundary of two zones the obtrusive light limitation values used should be those applicable to the most rigorous zone.

DESIGN GUIDANCE
The following limitations may be supplemented or replaced by a LPA's own planning guidance for exterior lighting installations. As lighting design is not as simple as it may seem, you are advised to consult and/or work with a professional lighting designer before installing any exterior lighting.

Table 1 – Obtrusive Light Limitations for Exterior Lighting Installations

Environmental Zone	Sky Glow ULR [Max %] (1)	Light Trespass (into Windows) Ev [Lux] (2)		Source Intensity I [kcd] (3)		Building Luminance Pre-curfew (4)
		Pre- curfew	Post- curfew	Pre- curfew	Post- curfew	Average, L [cd/m2]
E1	0	2	1*	2.5	0	0
E2	2.5	5	1	7.5	0.5	5
E3	5.0	10	2	10	1.0	10
E4	15.0	25	5	25	2.5	25

ULR = Upward Light Ratio of the Installation is the maximum permitted percentage of luminaire flux for the total installation that goes directly into the sky.
Ev = Vertical Illuminance in Lux and is measured flat on the glazing at the centre of the window
I = Light Intensity in Cd
L = Luminance in Cd/m2
Curfew = The time after which stricter requirements (for the control of obtrusive light) will apply; often a condition of use of lighting applied by the local planning authority. If not otherwise stated - 23.00hrs is suggested.
* = From Public road lighting installations only

(1) Upward Light Ratio – Some lighting schemes will require the deliberate and careful use of upward light – e.g. ground recessed luminaires, ground mounted floodlights, festive lighting – to which these limits cannot apply. However, care should always be taken to minimise any upward waste light by the proper application of suitably directional luminaires and light controlling attachments.

(2) Light Trespass (into Windows) – These values are suggested maxima and need to take account of existing light trespass at the point of measurement. In the case of road lighting on public highways where building facades are adjacent to the lit highway, these levels may not be obtainable. In such cases where a specific complaint has been received, the Highway Authority should endeavour to reduce the light trespass into the window down to the after curfew value by fitting a shield, replacing the luminaire, or by varying the lighting level.

(3) Source Intensity – This applies to each source in the potentially obtrusive direction, outside of the area being lit. The figures given are for general guidance only and for some sports lighting applications with limited mounting heights, may be difficult to achieve.

(4) Building Luminance – This should be limited to avoid over lighting, and related to the general district brightness. In this reference building luminance is applicable to buildings directly illuminated as a night-time feature as against the illumination of a building caused by spill light from adjacent luminaires or luminaires fixed to the building but used to light an adjacent area.

Table 2 – Maximum Values of Threshold Increment from Non-Road Lighting Installations

Light Technical Parameter TI	Road Classification (5)			
	No road lighting	ME5	ME4/ ME3	ME2 / ME1
	15% based on adaptation luminance of 0.1cd/m^2	15% based on adaptation luminance of 1cd/m^2	15% based on adaptation luminance of 2 cd/m^2	15% based on adaptation luminance of 5 cd/m^2

TI = Threshold Increment is a measure of the loss of visibility caused by the disability glare from the obtrusive light installation

(5) Road Classifications as given in BS EN 13201 - 2: 2003 Road lighting Performance requirements
Limits apply where users of transport systems are subject to a reduction in the ability to see essential information. Values given are for relevant positions and for viewing directions in path of travel. See CIE Publication 150:2003, Section 5.4 for methods of determination. For a more detailed description and methods for calculating and measuring the above parameters see CIE Publication 150:2003.

RELEVANT PUBLICATIONS AND STANDARDS:

British Standards: www.bsi.org.uk		BS 5489-1: 2003 Code of practice for the design of road lighting – Part 1: Lighting of roads and public amenity areas BS EN 13201-2:2003 Road lighting – Part 2: Performance requirements BS EN 13201-3:2003 Road lighting – Part 3: Calculation of performance BS EN 13201-4:2003 Road lighting – Part 4: Methods of measuring lighting performance. BS EN 12193: 2003 Light and lighting – Sports lighting
Countryside Commission/DOE www.odpm.gov.uk		Lighting in the Countryside: Towards good practice (1997) *(Out of Print)*
CIBSE/SLL Publications: www.cibse.org	CoL	Code for Lighting (2002)
	LG1	The Industrial Environment (1989)
	LG4	Sports (1990+Addendum 2000)
	LG6	The Exterior Environment (1992)
	FF7	Environmental Considerations for Exterior Lighting (2003)
CIE Publications: www.cie.co.at	01	Guide lines for minimizing Urban Sky Glow near Astronomical Observatories (1980)
	B3	Guide for the lighting of sports events for colour television and film systems (1989)
	92	Guide for floodlighting (1992)
	115	Recommendations for the lighting of roads for motor and pedestrian traffic (1995)
	126	Guidelines for minimizing Sky glow (1997)
	129	Guide for lighting exterior work areas (1998)
	136	Guide to the lighting of urban areas (2000)
	150	Guide on the limitations of the effect of obtrusive light from outdoor lighting installations (2003)
	154	The Maintenance of outdoor lighting systems (2003)
Department of Transport www.defra.gov.uk		Road Lighting and the Environment (1993) (Out of Print)
ILE Publications: www.ile.org	TR 5	Brightness of Illuminated Advertisements (2001)
	TR24	A Practical Guide to the Development of a Public Lighting Policy for Local Authorities (1999)
	GN02	Domestic Security Lighting, Friend or Foe
ILE/CIBSE Joint Publications		Lighting the Environment - A guide to good urban lighting (1995)
ILE/CSS Joint Publications		Seasonal Decorations – Code of Practice (2005)
Campaign for Dark Skies (CfDS) www.dark-skies.org		

NB: These notes are intended as guidance only and the application of the values given in Tables 1 & 2 should be given due consideration along with all other factors in the lighting design. Lighting is a complex subject with both objective and subjective criteria to be considered. The notes are therefore no substitute for professionally assessed and designed lighting, where the various and maybe conflicting visual requirements need to be balanced.

Sources of Information

GIA
Various Site Photographs

Website:-
www.findmaps.co.uk
www.maps.live.com

MSA Surveys DWGs
Received 17/10/08:-
2806_3D-ALL_171008.dwg
Received 22/10/08:-
2806_E_151008.dwg, 2806_R_151008.dwg,
2806_F_151008.dwg, 2806_F_171008-with OS.dwg

Key

N

Rev	Description	Date

Project
Centre Point
103 Oxford Street
London
W1C 1DD

Title
Site Plan
Existing

Scale 1/1000 @ A3
Date November 2008
Drawn MW
Checked
Drawing No. 4622-01
Rel No. 01
Revision

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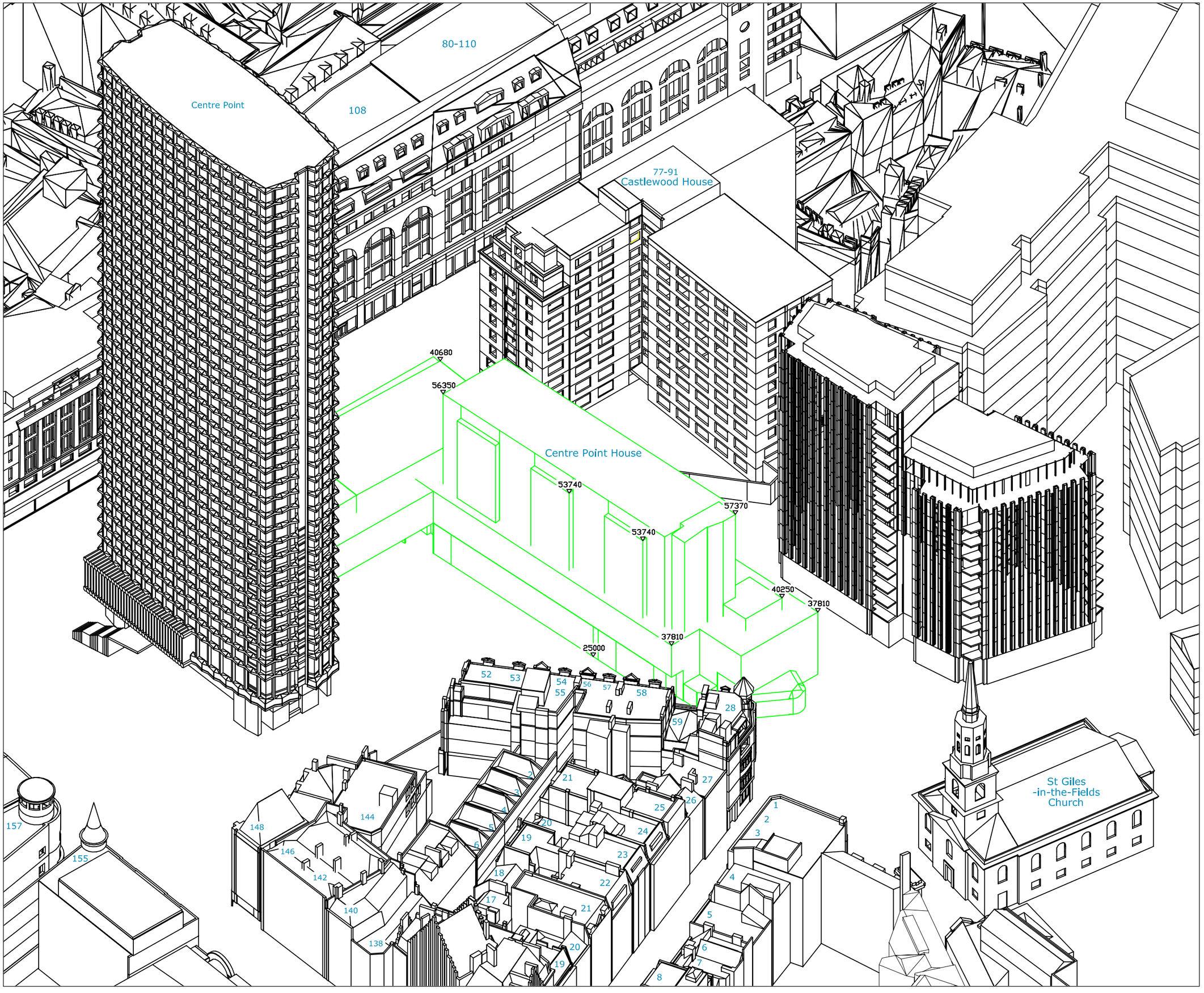

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Key

Rev	Description	Date

Project
Centre Point
103 Oxford Street
London
W1C 1DD

Title
3D View
Existing

Scale	Date
N.T.S	November 2008
Drawn	Checked
MW	
Drawing No.	Rel No. Revision
4622-02	01

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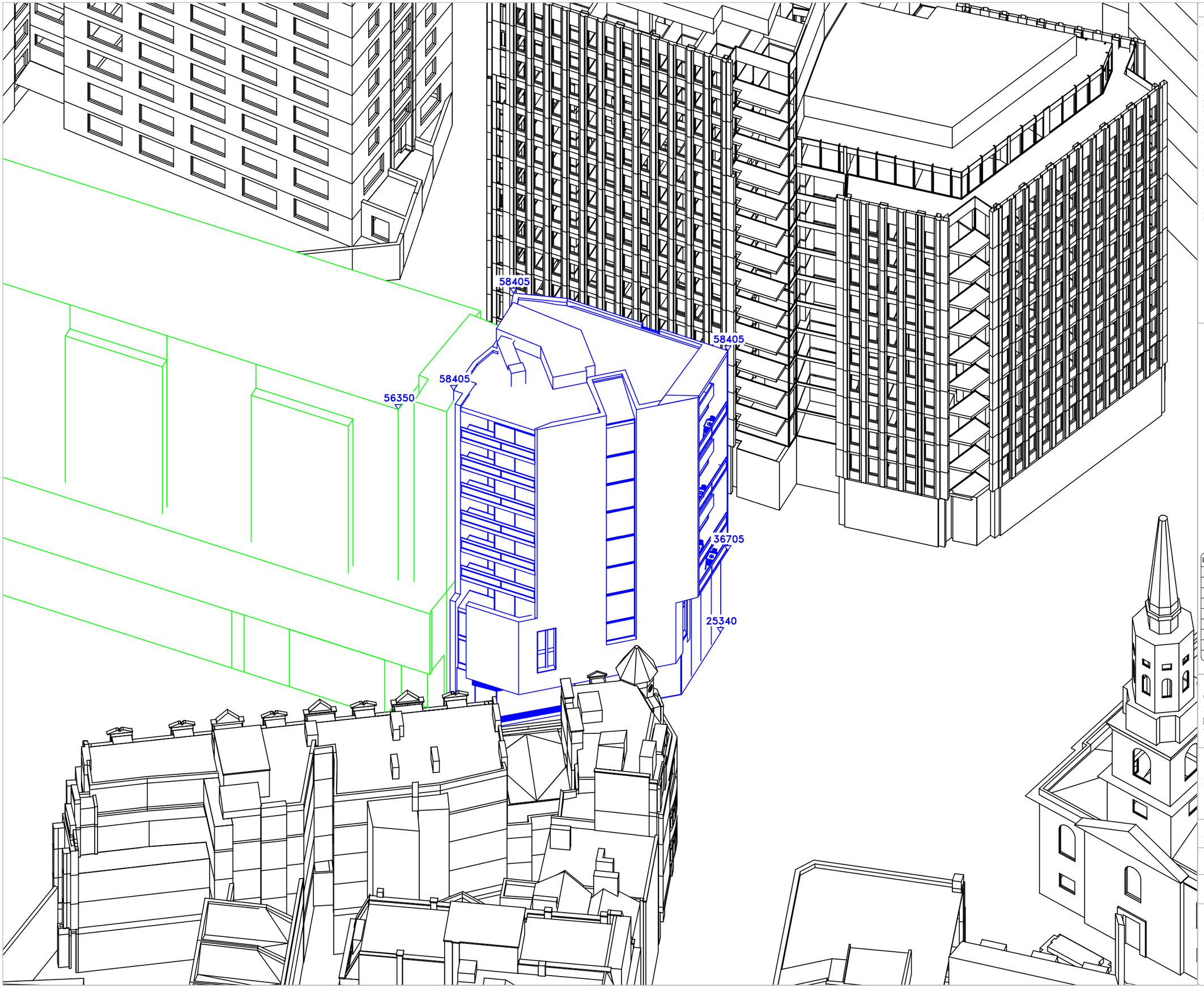

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Rick Mather Architects:
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IR11-4622 (Rick Mather Architects - Affordable Housing Masssing and Centre Point House 01.03.13)

Notes

ALL HEIGHTS GIVEN IN mm AOD

Rev	Date	Description	Initials
		Initial Issue	

Project

Centre Point
103 Oxford Street
London
W1C 1DD

Title

3D View
Proposal received 17/03/13 IR13
Option A

Scale: NTS @A3
Date: MAR 13
Drawn: TB/CJ
Checked: -
Drawing No.: 4622/10/04
Rel No.: 10
Revision: A

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Rev	Date	Description	Initials
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Project

Centre Point
103 Oxford Street
London
W1C 1DD

Title

Site Plan
Proposal received 17/03/13 IR13
Option A

Scale	Date
1:750 @A3	MAR 13
Drawn	**Checked**
TB/CJ	-

Drawing No.	Rel No.	Revision
4622/10/03	10	A

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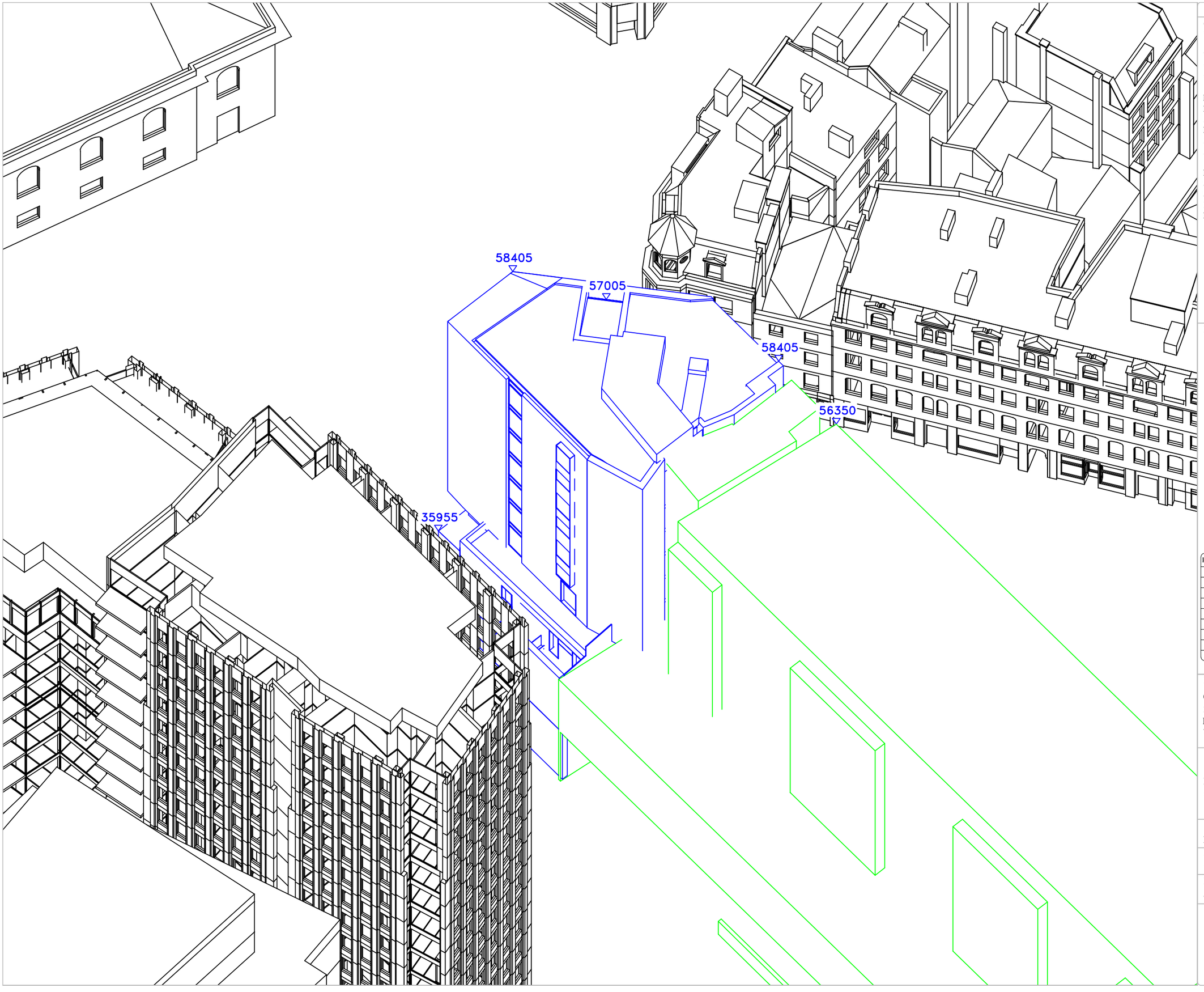

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Project

Centre Point
103 Oxford Street
London
W1C 1DD

Title

3D View
Proposal received 17/03/13 IR13
Option A

Scale
NTS @A3

Date
MAR 13

Drawn
TB/CJ

Checked
-

Drawing No.
4622/10/05

Rel No.
10

Revision
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Notes

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Rev	Date	Description	Initials
A		Initial Issue	

Project

Centre Point
103 Oxford Street
London
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Title

Site Plan
Proposal received 17/03/13 IR13
Option B

Scale: 1:750 @A3
Date: MAR 13
Drawn: TB/CJ
Checked: -
Drawing No.: 4622/10/06
Rel No.: 10
Revision: A

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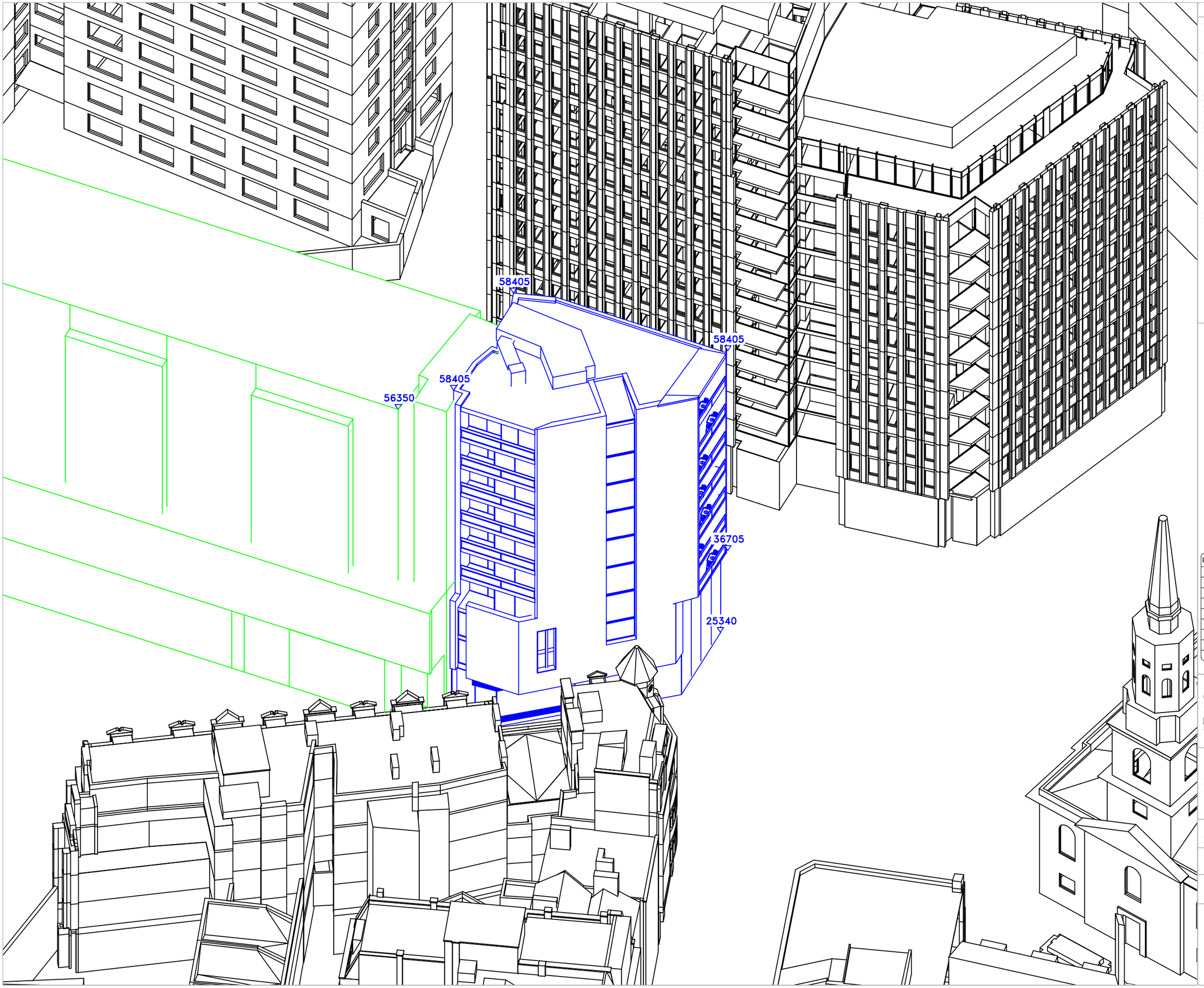

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103 Oxford Street
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Title

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Option B

Scale: NTS @A3
Date: MAR 13
Drawn: TB/CJ
Checked: -
Drawing No.: 4622/10/07
Rel No.: 10
Revision: A

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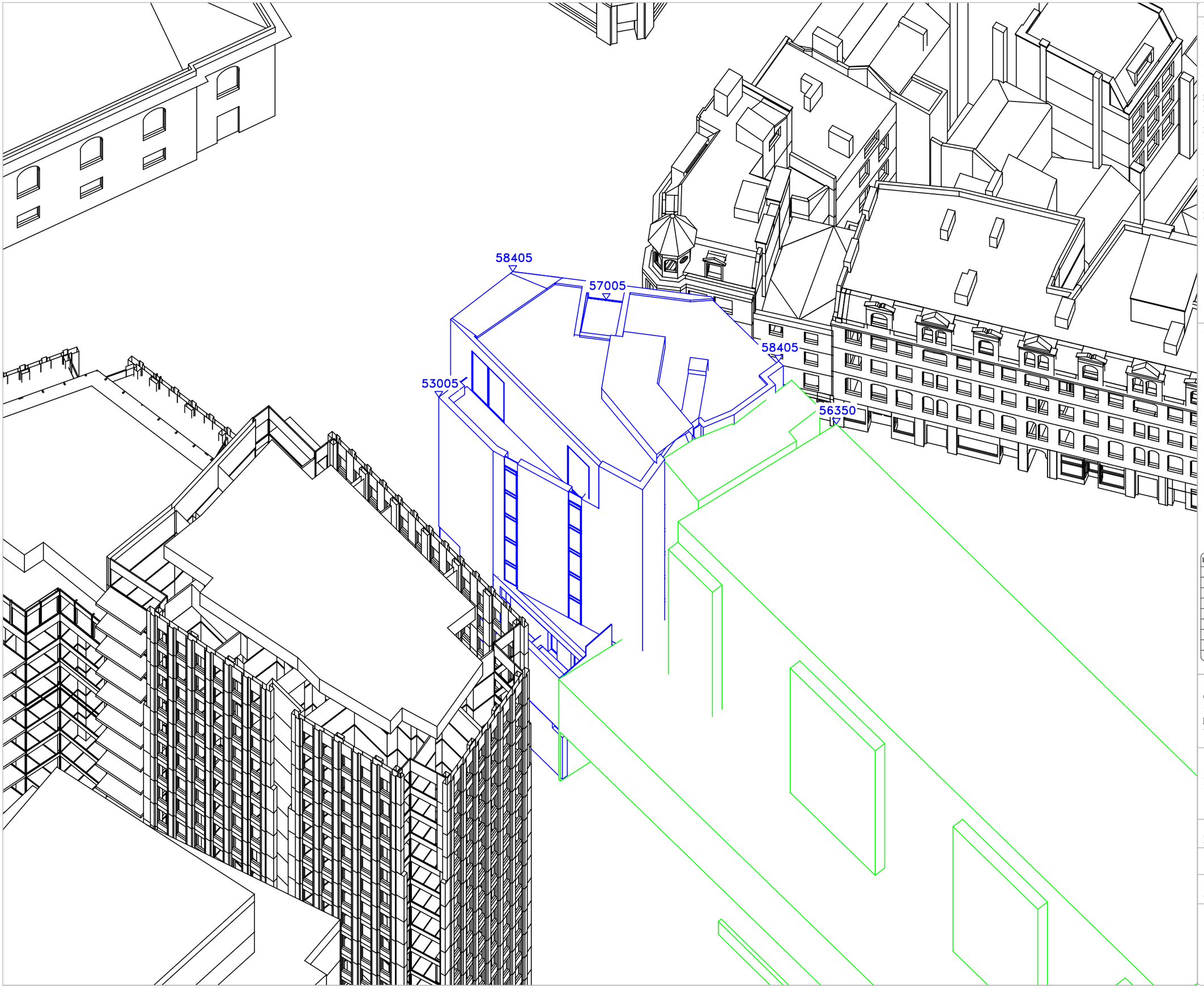

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Scale		Date
NTS	@A3	MAR 13

Drawn	Checked
TB/CJ	-

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4622/10/08	10	A

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Vertical Sky Component					
Room	**Window**	**Existing**	**Proposed**	**Loss**	**%**
1-53 MATILDA APARTMENTS, 4 EARNSHAW STREET					
R1/601	**W1/601**	8.27	8.27	0.00	0.00
R1/601	**W2/601**	17.18	17.18	0.00	0.00
R1/601	**W3/601**	17.42	17.42	0.00	0.00
R1/601	**W4/601**	17.57	17.57	0.00	0.00
R1/601	**W73/601**	7.58	7.58	0.00	0.00
R1/601	**W74/601**	5.03	5.03	0.00	0.00
R2/601	**W5/601**	17.63	17.63	0.00	0.00
R2/601	**W6/601**	17.66	17.66	0.00	0.00
R2/601	**W7/601**	17.61	17.61	0.00	0.00
R2/601	**W8/601**	5.56	5.56	0.00	0.00
R3/601	**W9/601**	10.95	10.95	0.00	0.00
R3/601	**W10/601**	14.36	10.08	4.28	29.81
R3/601	**W11/601**	14.92	10.20	4.72	31.64
R3/601	**W12/601**	15.54	10.36	5.18	33.33
R3/601	**W13/601**	16.17	10.51	5.66	35.00
R4/601	**W14/601**	16.77	10.60	6.17	36.79
R4/601	**W15/601**	17.65	10.89	6.76	38.30
R4/601	**W16/601**	18.50	11.19	7.31	39.51
R5/601	**W17/601**	19.39	11.61	7.78	40.12
R5/601	**W18/601**	20.29	12.02	8.27	40.76
R5/601	**W19/601**	21.19	12.49	8.70	41.06
R6/601	**W20/601**	22.01	13.19	8.82	40.07
R6/601	**W21/601**	22.91	13.98	8.93	38.98
R6/601	**W22/601**	4.50	4.50	0.00	0.00
R7/601	**W23/601**	9.29	5.20	4.09	44.03

Vertical Sky Component					
Room	**Window**	**Existing**	**Proposed**	**Loss**	**%**
R7/601	**W24/601**	9.52	9.35	0.17	1.79
R8/601	**W25/601**	19.20	13.06	6.14	31.98
R9/601	**W26/601**	9.64	5.64	4.00	41.49
R9/601	**W27/601**	28.51	23.12	5.39	18.91
R9/601	**W28/601**	28.87	23.90	4.97	17.22
R10/601	**W29/601**	29.11	24.81	4.30	14.77
R10/601	**W30/601**	29.20	25.43	3.77	12.91
R10/601	**W31/601**	29.26	26.01	3.25	11.11
R10/601	**W32/601**	11.33	11.33	0.00	0.00
R11/601	**W33/601**	7.65	7.65	0.00	0.00
R11/601	**W34/601**	31.18	31.18	0.00	0.00
R11/601	**W35/601**	31.23	31.23	0.00	0.00
R1/602	**W1/602**	9.00	9.00	0.00	0.00
R1/602	**W2/602**	18.64	18.64	0.00	0.00
R1/602	**W3/602**	18.90	18.90	0.00	0.00
R2/602	**W4/602**	19.09	19.09	0.00	0.00
R2/602	**W5/602**	19.17	19.17	0.00	0.00
R3/602	**W6/602**	19.21	19.21	0.00	0.00
R3/602	**W7/602**	19.16	19.16	0.00	0.00
R3/602	**W8/602**	6.36	6.36	0.00	0.00
R4/602	**W9/602**	11.63	11.63	0.00	0.00
R4/602	**W10/602**	16.62	11.48	5.14	30.93
R4/602	**W11/602**	17.33	11.59	5.74	33.12
R5/602	**W12/602**	18.10	11.73	6.37	35.19

Vertical Sky Component					
Room	**Window**	**Existing**	**Proposed**	**Loss**	**%**
R5/602	**W13/602**	18.87	11.86	7.01	37.15
R6/602	**W14/602**	19.57	11.91	7.66	39.14
R6/602	**W15/602**	20.55	12.18	8.37	40.73
R7/602	**W16/602**	21.55	12.45	9.10	42.23
R7/602	**W17/602**	22.50	12.85	9.65	42.89
R8/602	**W18/602**	23.40	13.24	10.16	43.42
R8/602	**W19/602**	24.23	13.70	10.53	43.46
R9/602	**W20/602**	24.94	14.37	10.57	42.38
R9/602	**W21/602**	25.65	15.13	10.52	41.01
R9/602	**W22/602**	5.06	5.06	0.00	0.00
R10/602	**W23/602**	11.25	5.70	5.55	49.33
R10/602	**W24/602**	9.91	9.74	0.17	1.72
R11/602	**W25/602**	20.58	14.00	6.58	31.97
R12/602	**W26/602**	10.63	6.37	4.26	40.08
R12/602	**W27/602**	30.23	24.60	5.63	18.62
R12/602	**W28/602**	30.58	25.42	5.16	16.87
R13/602	**W29/602**	30.80	26.36	4.44	14.42
R13/602	**W30/602**	30.87	27.00	3.87	12.54
R13/602	**W31/602**	30.92	27.61	3.31	10.71
R13/602	**W32/602**	12.27	12.27	0.00	0.00
R14/602	**W33/602**	8.34	8.34	0.00	0.00
R14/602	**W34/602**	32.75	32.75	0.00	0.00
R14/602	**W35/602**	32.78	32.78	0.00	0.00

Vertical Sky Component					
Room	**Window**	**Existing**	**Proposed**	**Loss**	**%**
R1/603	**W1/603**	9.88	9.88	0.00	0.00
R1/603	**W2/603**	20.27	20.27	0.00	0.00
R1/603	**W3/603**	20.54	20.54	0.00	0.00
R2/603	**W4/603**	20.75	20.75	0.00	0.00
R2/603	**W5/603**	20.87	20.87	0.00	0.00
R3/603	**W6/603**	20.90	20.90	0.00	0.00
R3/603	**W7/603**	20.85	20.85	0.00	0.00
R3/603	**W8/603**	7.31	7.31	0.00	0.00
R4/603	**W9/603**	12.32	12.32	0.00	0.00
R4/603	**W10/603**	18.79	13.20	5.59	29.75
R4/603	**W11/603**	19.57	13.28	6.29	32.14
R5/603	**W12/603**	20.43	13.39	7.04	34.46
R5/603	**W13/603**	21.28	13.50	7.78	36.56
R5/603	**W14/603**	22.05	13.50	8.55	38.78
R5/603	**W15/603**	23.06	13.75	9.31	40.37
R6/603	**W16/603**	24.09	13.99	10.10	41.93
R6/603	**W17/603**	25.03	14.35	10.68	42.67
R7/603	**W18/603**	25.82	14.71	11.11	43.03
R7/603	**W19/603**	26.56	15.15	11.41	42.96
R8/603	**W20/603**	27.18	15.78	11.40	41.94
R8/603	**W21/603**	27.85	16.50	11.35	40.75
R8/603	**W22/603**	5.57	5.57	0.00	0.00
R9/603	**W23/603**	12.90	6.19	6.71	52.02
R9/603	**W24/603**	10.28	10.11	0.17	1.65

Vertical Sky Component					
Room	**Window**	**Existing**	**Proposed**	**Loss**	**%**
R10/603	**W25/603**	21.69	15.02	6.67	30.75
R11/603	**W26/603**	11.46	7.15	4.31	37.61
R11/603	**W27/603**	31.66	26.03	5.63	17.78
R11/603	**W28/603**	31.99	26.87	5.12	16.01
R12/603	**W29/603**	32.20	27.82	4.38	13.60
R12/603	**W30/603**	32.25	28.47	3.78	11.72
R12/603	**W31/603**	32.30	29.08	3.22	9.97
R12/603	**W32/603**	13.36	13.36	0.00	0.00
R1/604	**W1/604**	10.96	10.96	0.00	0.00
R1/604	**W2/604**	22.09	22.09	0.00	0.00
R1/604	**W3/604**	22.36	22.36	0.00	0.00
R2/604	**W4/604**	22.58	22.58	0.00	0.00
R2/604	**W5/604**	22.72	22.72	0.00	0.00
R3/604	**W6/604**	22.75	22.75	0.00	0.00
R3/604	**W7/604**	22.70	22.70	0.00	0.00
R3/604	**W8/604**	8.46	8.46	0.00	0.00
R4/604	**W9/604**	13.02	13.02	0.00	0.00
R4/604	**W10/604**	20.69	15.30	5.39	26.05
R4/604	**W11/604**	21.44	15.35	6.09	28.40
R5/604	**W12/604**	22.24	15.43	6.81	30.62
R5/604	**W13/604**	23.06	15.52	7.54	32.70
R5/604	**W14/604**	23.84	15.46	8.38	35.15
R5/604	**W15/604**	24.85	15.69	9.16	36.86
R6/604	**W16/604**	25.84	15.87	9.97	38.58
R6/604	**W17/604**	26.76	16.20	10.56	39.46

		Vertical Sky Component			
Room	Window	Existing	Proposed	Loss	%
R7/604	W18/604	27.46	16.50	10.96	39.91
R7/604	W19/604	28.13	16.91	11.22	39.89
R8/604	W20/604	28.67	17.48	11.19	39.03
R8/604	W21/604	29.27	18.15	11.12	37.99
R8/604	W22/604	6.39	6.39	0.00	0.00
R9/604	W23/604	14.10	6.64	7.46	52.91
R9/604	W24/604	10.64	10.46	0.18	1.69
R10/604	W25/604	22.50	16.12	6.38	28.36
R11/604	W26/604	12.10	7.98	4.12	34.05
R11/604	W27/604	32.81	27.45	5.36	16.34
R11/604	W28/604	33.14	28.30	4.84	14.60
R12/604	W29/604	33.32	29.21	4.11	12.33
R12/604	W30/604	33.38	29.86	3.52	10.55
R12/604	W31/604	33.42	30.45	2.97	8.89
R12/604	W32/604	14.31	14.31	0.00	0.00
R13/604	W33/604	10.01	10.01	0.00	0.00
R13/604	W34/604	35.03	35.03	0.00	0.00
R13/604	W35/604	35.02	35.02	0.00	0.00
R13/604	W36/604	35.10	35.10	0.00	0.00
R1/605	W1/605	12.28	12.28	0.00	0.00
R1/605	W2/605	24.14	24.14	0.00	0.00
R1/605	W3/605	24.38	24.38	0.00	0.00
R1/605	W4/605	24.59	24.59	0.00	0.00
R2/605	W5/605	24.75	24.75	0.00	0.00

Vertical Sky Component					
Room	**Window**	**Existing**	**Proposed**	**Loss**	**%**
R2/605	**W6/605**	24.75	24.75	0.00	0.00
R2/605	**W7/605**	24.70	24.70	0.00	0.00
R2/605	**W8/605**	9.79	9.79	0.00	0.00
R3/605	**W9/605**	13.74	13.74	0.00	0.00
R3/605	**W10/605**	22.74	17.85	4.89	21.50
R3/605	**W11/605**	23.41	17.87	5.54	23.67
R4/605	**W12/605**	24.14	17.92	6.22	25.77
R4/605	**W13/605**	24.88	17.98	6.90	27.73
R5/605	**W14/605**	25.55	17.85	7.70	30.14
R5/605	**W15/605**	26.49	18.07	8.42	31.79
R5/605	**W16/605**	27.34	18.17	9.17	33.54
R5/605	**W17/605**	28.15	18.42	9.73	34.56
R6/605	**W18/605**	28.79	18.67	10.12	35.15
R6/605	**W19/605**	29.41	19.02	10.39	35.33
R7/605	**W20/605**	29.93	19.51	10.42	34.81
R7/605	**W21/605**	30.44	20.12	10.32	33.90
R7/605	**W22/605**	6.36	6.36	0.00	0.00
R8/605	**W23/605**	15.15	7.01	8.14	53.73
R8/605	**W24/605**	10.95	10.79	0.16	1.46
R9/605	**W25/605**	23.06	17.32	5.74	24.89
R10/605	**W26/605**	12.57	8.86	3.71	29.51
R10/605	**W27/605**	33.64	28.80	4.84	14.39
R10/605	**W28/605**	33.96	29.62	4.34	12.78
R11/605	**W29/605**	34.13	30.47	3.66	10.72

Vertical Sky Component					
Room	**Window**	**Existing**	**Proposed**	**Loss**	**%**
R11/605	**W30/605**	34.19	31.07	3.12	9.13
R11/605	**W31/605**	34.25	31.63	2.62	7.65
R11/605	**W32/605**	15.06	15.06	0.00	0.00
R12/605	**W33/605**	10.63	10.63	0.00	0.00
R12/605	**W34/605**	35.92	35.92	0.00	0.00
R12/605	**W35/605**	35.92	35.92	0.00	0.00
R1/606	**W1/606**	13.89	13.89	0.00	0.00
R1/606	**W2/606**	26.42	26.42	0.00	0.00
R1/606	**W3/606**	26.59	26.59	0.00	0.00
R1/606	**W4/606**	26.76	26.76	0.00	0.00
R2/606	**W5/606**	26.91	26.91	0.00	0.00
R2/606	**W6/606**	26.87	26.87	0.00	0.00
R2/606	**W7/606**	26.81	26.81	0.00	0.00
R2/606	**W8/606**	11.32	11.32	0.00	0.00
R3/606	**W9/606**	14.46	14.46	0.00	0.00
R3/606	**W10/606**	25.00	20.86	4.14	16.56
R3/606	**W11/606**	25.57	20.86	4.71	18.42
R4/606	**W12/606**	26.19	20.89	5.30	20.24
R4/606	**W13/606**	26.83	20.92	5.91	22.03
R5/606	**W14/606**	27.33	20.72	6.61	24.19
R5/606	**W15/606**	28.16	20.91	7.25	25.75
R5/606	**W16/606**	28.83	20.92	7.91	27.44
R5/606	**W17/606**	29.53	21.12	8.41	28.48
R6/606	**W18/606**	30.07	21.29	8.78	29.20
R6/606	**W19/606**	30.62	21.59	9.03	29.49

Vertical Sky Component					
Room	**Window**	**Existing**	**Proposed**	**Loss**	**%**
R7/606	**W20/606**	31.06	21.97	9.09	29.27
R7/606	**W21/606**	31.50	22.49	9.01	28.60
R7/606	**W22/606**	6.66	6.66	0.00	0.00
R8/606	**W23/606**	16.08	8.83	7.25	45.09
R8/606	**W24/606**	11.28	11.14	0.14	1.24
R9/606	**W25/606**	23.56	18.68	4.88	20.71
R10/606	**W26/606**	13.16	10.00	3.16	24.01
R10/606	**W27/606**	34.31	30.18	4.13	12.04
R10/606	**W28/606**	34.64	30.95	3.69	10.65
R11/606	**W29/606**	34.78	31.69	3.09	8.88
R11/606	**W30/606**	34.84	32.23	2.61	7.49
R11/606	**W31/606**	34.92	32.73	2.19	6.27
R11/606	**W32/606**	15.73	15.73	0.00	0.00
R12/606	**W33/606**	11.10	11.10	0.00	0.00
R12/606	**W34/606**	36.71	36.71	0.00	0.00
R12/606	**W35/606**	36.70	36.70	0.00	0.00
R1/607	**W1/607**	15.76	15.76	0.00	0.00
R1/607	**W2/607**	28.87	28.87	0.00	0.00
R1/607	**W3/607**	28.92	28.92	0.00	0.00
R1/607	**W4/607**	29.02	29.02	0.00	0.00
R2/607	**W5/607**	29.13	29.13	0.00	0.00
R2/607	**W6/607**	29.03	29.03	0.00	0.00
R2/607	**W7/607**	28.96	28.96	0.00	0.00
R2/607	**W8/607**	12.98	12.98	0.00	0.00
R3/607	**W9/607**	15.18	15.18	0.00	0.00

Vertical Sky Component					
Room	**Window**	**Existing**	**Proposed**	**Loss**	**%**
R3/607	**W10/607**	27.45	24.24	3.21	11.69
R3/607	**W11/607**	27.90	24.23	3.67	13.15
R4/607	**W12/607**	28.39	24.26	4.13	14.55
R4/607	**W13/607**	28.89	24.28	4.61	15.96
R5/607	**W14/607**	29.20	24.03	5.17	17.71
R5/607	**W15/607**	29.92	24.22	5.70	19.05
R5/607	**W16/607**	30.37	24.14	6.23	20.51
R5/607	**W17/607**	30.93	24.29	6.64	21.47
R6/607	**W18/607**	31.35	24.39	6.96	22.20
R6/607	**W19/607**	31.80	24.64	7.16	22.52
R7/607	**W20/607**	32.14	24.93	7.21	22.43
R7/607	**W21/607**	32.50	25.32	7.18	22.09
R7/607	**W22/607**	6.92	6.92	0.00	0.00
R8/607	**W23/607**	16.87	11.12	5.75	34.08
R8/607	**W24/607**	11.71	11.60	0.11	0.94
R9/607	**W25/607**	23.99	20.19	3.80	15.84
R10/607	**W26/607**	13.76	11.28	2.48	18.02
R10/607	**W27/607**	34.84	31.62	3.22	9.24
R10/607	**W28/607**	35.17	32.31	2.86	8.13
R11/607	**W29/607**	35.29	32.90	2.39	6.77
R11/607	**W30/607**	35.34	33.33	2.01	5.69
R11/607	**W31/607**	35.44	33.76	1.68	4.74
R11/607	**W32/607**	16.32	16.32	0.00	0.00
R12/607	**W33/607**	11.44	11.44	0.00	0.00

Vertical Sky Component					
Room	**Window**	**Existing**	**Proposed**	**Loss**	**%**
R12/607	**W34/607**	37.40	37.40	0.00	0.00
R12/607	**W35/607**	37.39	37.39	0.00	0.00
R1/608	**W1/608**	17.87	17.87	0.00	0.00
R1/608	**W2/608**	31.33	31.33	0.00	0.00
R1/608	**W3/608**	31.22	31.22	0.00	0.00
R1/608	**W4/608**	31.22	31.22	0.00	0.00
R2/608	**W5/608**	31.27	31.27	0.00	0.00
R2/608	**W6/608**	31.10	31.10	0.00	0.00
R2/608	**W7/608**	31.01	31.01	0.00	0.00
R2/608	**W8/608**	14.69	14.69	0.00	0.00
R3/608	**W9/608**	15.85	15.85	0.00	0.00
R3/608	**W10/608**	29.94	27.76	2.18	7.28
R3/608	**W11/608**	30.25	27.75	2.50	8.26
R4/608	**W12/608**	30.63	27.81	2.82	9.21
R4/608	**W13/608**	30.97	27.83	3.14	10.14
R5/608	**W14/608**	31.08	27.56	3.52	11.33
R5/608	**W15/608**	31.66	27.78	3.88	12.26
R5/608	**W16/608**	31.89	27.64	4.25	13.33
R5/608	**W17/608**	32.30	27.77	4.53	14.02
R6/608	**W18/608**	32.58	27.83	4.75	14.58
R6/608	**W19/608**	32.93	28.04	4.89	14.85
R7/608	**W20/608**	33.16	28.23	4.93	14.87
R7/608	**W21/608**	33.42	28.51	4.91	14.69
R7/608	**W22/608**	7.15	7.15	0.00	0.00
R8/608	**W23/608**	17.60	13.63	3.97	22.56

Vertical Sky Component					
Room	**Window**	**Existing**	**Proposed**	**Loss**	**%**
R8/608	**W24/608**	12.48	12.40	0.08	0.64
R9/608	**W25/608**	24.46	21.86	2.60	10.63
R10/608	**W26/608**	14.31	12.62	1.69	11.81
R10/608	**W27/608**	35.27	33.10	2.17	6.15
R10/608	**W28/608**	35.60	33.68	1.92	5.39
R11/608	**W29/608**	35.70	34.10	1.60	4.48
R11/608	**W30/608**	35.73	34.39	1.34	3.75
R11/608	**W31/608**	35.85	34.72	1.13	3.15
R11/608	**W32/608**	16.81	16.81	0.00	0.00
R12/608	**W33/608**	11.72	11.72	0.00	0.00
R12/608	**W34/608**	37.93	37.93	0.00	0.00
R12/608	**W35/608**	37.94	37.94	0.00	0.00
R1/609	**W1/609**	20.08	20.08	0.00	0.00
R1/609	**W2/609**	33.34	33.34	0.00	0.00
R1/609	**W3/609**	33.10	33.10	0.00	0.00
R1/609	**W4/609**	33.01	33.01	0.00	0.00
R2/609	**W5/609**	33.03	33.03	0.00	0.00
R2/609	**W6/609**	32.83	32.83	0.00	0.00
R2/609	**W7/609**	32.74	32.74	0.00	0.00
R2/609	**W8/609**	16.35	16.35	0.00	0.00
R3/609	**W9/609**	16.55	16.55	0.00	0.00
R3/609	**W10/609**	32.23	31.02	1.21	3.75
R3/609	**W11/609**	32.41	31.03	1.38	4.26
R4/609	**W12/609**	32.66	31.11	1.55	4.75
R4/609	**W13/609**	32.85	31.15	1.70	5.18

Vertical Sky Component					
Room	**Window**	**Existing**	**Proposed**	**Loss**	**%**
R5/609	**W14/609**	32.79	30.90	1.89	5.76
R5/609	**W15/609**	33.25	31.18	2.07	6.23
R5/609	**W16/609**	33.27	31.01	2.26	6.79
R5/609	**W17/609**	33.54	31.14	2.40	7.16
R6/609	**W18/609**	33.69	31.16	2.53	7.51
R6/609	**W19/609**	33.94	31.34	2.60	7.66
R7/609	**W20/609**	34.08	31.45	2.63	7.72
R7/609	**W21/609**	34.24	31.63	2.61	7.62
R7/609	**W22/609**	7.34	7.34	0.00	0.00
R8/609	**W23/609**	18.24	16.07	2.17	11.90
R8/609	**W24/609**	14.35	14.31	0.04	0.28
R9/609	**W25/609**	25.15	23.72	1.43	5.69
R10/609	**W26/609**	14.79	13.86	0.93	6.29
R10/609	**W27/609**	35.63	34.52	1.11	3.12
R10/609	**W28/609**	35.95	34.96	0.99	2.75
R11/609	**W29/609**	36.04	35.23	0.81	2.25
R11/609	**W30/609**	36.05	35.37	0.68	1.89
R11/609	**W31/609**	36.17	35.61	0.56	1.55
R11/609	**W32/609**	17.25	17.25	0.00	0.00
R12/609	**W33/609**	11.97	11.97	0.00	0.00
R12/609	**W34/609**	38.34	38.34	0.00	0.00
R12/609	**W35/609**	38.35	38.35	0.00	0.00
R1/610	**W1/610**	22.37	22.37	0.00	0.00
R1/610	**W2/610**	34.26	34.26	0.00	0.00

		Vertical Sky Component			
Room	Window	Existing	Proposed	Loss	%
R1/610	W3/610	34.02	34.02	0.00	0.00
R2/610	W4/610	33.92	33.92	0.00	0.00
R2/610	W5/610	33.95	33.95	0.00	0.00
R3/610	W6/610	33.75	33.75	0.00	0.00
R3/610	W7/610	33.66	33.66	0.00	0.00
R3/610	W8/610	17.83	17.83	0.00	0.00
R4/610	W9/610	17.61	17.61	0.00	0.00
R4/610	W10/610	33.26	32.98	0.28	0.84
R4/610	W11/610	33.39	33.07	0.32	0.96
R5/610	W12/610	33.59	33.25	0.34	1.01
R5/610	W13/610	33.73	33.36	0.37	1.10
R5/610	W14/610	33.60	33.20	0.40	1.19
R5/610	W15/610	34.02	33.59	0.43	1.26
R5/610	W16/610	33.97	33.51	0.46	1.35
R6/610	W17/610	34.19	33.71	0.48	1.40
R6/610	W18/610	34.30	33.79	0.51	1.49
R7/610	W19/610	34.51	34.00	0.51	1.48
R7/610	W20/610	34.63	34.10	0.53	1.53
R7/610	W21/610	34.76	34.24	0.52	1.50
R7/610	W22/610	7.83	7.83	0.00	0.00
R8/610	W23/610	18.27	17.73	0.54	2.96
R8/610	W24/610	19.41	19.41	0.00	0.00
R9/610	W25/610	27.78	27.42	0.36	1.30
R10/610	W26/610	15.35	15.11	0.24	1.56

Vertical Sky Component					
Room	Window	Existing	Proposed	Loss	%
R10/610	**W27/610**	35.89	35.71	0.18	0.50
R10/610	**W28/610**	36.19	36.04	0.15	0.41
R11/610	**W29/610**	36.28	36.16	0.12	0.33
R11/610	**W30/610**	36.29	36.20	0.09	0.25
R11/610	**W31/610**	36.41	36.34	0.07	0.19
R11/610	**W32/610**	28.10	28.10	0.00	0.00
R12/610	**W33/610**	22.46	22.46	0.00	0.00
R12/610	**W34/610**	38.57	38.57	0.00	0.00
R12/610	**W35/610**	38.59	38.59	0.00	0.00
R1/611	**W1/611**	24.81	24.81	0.00	0.00
R1/611	**W2/611**	34.57	34.57	0.00	0.00
R1/611	**W3/611**	34.33	34.33	0.00	0.00
R1/611	**W4/611**	34.23	34.23	0.00	0.00
R2/611	**W5/611**	34.25	34.25	0.00	0.00
R2/611	**W6/611**	34.05	34.05	0.00	0.00
R2/611	**W7/611**	33.96	33.96	0.00	0.00
R2/611	**W8/611**	18.67	18.67	0.00	0.00
R3/611	**W9/611**	18.49	18.49	0.00	0.00
R3/611	**W10/611**	33.41	33.41	0.00	0.00
R3/611	**W11/611**	33.54	33.54	0.00	0.00
R3/611	**W12/611**	33.74	33.74	0.00	0.00
R3/611	**W13/611**	33.88	33.88	0.00	0.00
R4/611	**W14/611**	33.75	33.75	0.00	0.00
R4/611	**W15/611**	34.17	34.17	0.00	0.00
R4/611	**W16/611**	34.12	34.12	0.00	0.00
R4/611	**W17/611**	34.34	34.34	0.00	0.00

Vertical Sky Component					
Room	**Window**	**Existing**	**Proposed**	**Loss**	**%**
R5/611	**W18/611**	34.45	34.45	0.00	0.00
R5/611	**W19/611**	34.66	34.66	0.00	0.00
R6/611	**W20/611**	34.77	34.77	0.00	0.00
R6/611	**W21/611**	34.90	34.90	0.00	0.00
R6/611	**W22/611**	10.48	10.48	0.00	0.00
R7/611	**W23/611**	18.64	18.64	0.00	0.00
R7/611	**W24/611**	26.74	26.74	0.00	0.00
R1/612	**W1/612**	26.03	26.03	0.00	0.00
R1/612	**W2/612**	34.70	34.70	0.00	0.00
R1/612	**W3/612**	34.47	34.47	0.00	0.00
R1/612	**W4/612**	34.37	34.37	0.00	0.00
R2/612	**W5/612**	34.39	34.39	0.00	0.00
R2/612	**W6/612**	34.19	34.19	0.00	0.00
R2/612	**W7/612**	34.10	34.10	0.00	0.00
R2/612	**W8/612**	18.86	18.86	0.00	0.00
R3/612	**W9/612**	18.67	18.67	0.00	0.00
R3/612	**W10/612**	33.56	33.56	0.00	0.00
R3/612	**W11/612**	33.69	33.69	0.00	0.00
R3/612	**W12/612**	33.89	33.89	0.00	0.00
R3/612	**W13/612**	34.03	34.03	0.00	0.00
R4/612	**W14/612**	33.90	33.90	0.00	0.00
R4/612	**W15/612**	34.31	34.31	0.00	0.00
R4/612	**W16/612**	34.27	34.27	0.00	0.00
R4/612	**W17/612**	34.48	34.48	0.00	0.00
R5/612	**W18/612**	34.59	34.59	0.00	0.00
R5/612	**W19/612**	34.80	34.80	0.00	0.00

Vertical Sky Component					
Room	Window	Existing	Proposed	Loss	%
R6/612	W20/612	34.91	34.91	0.00	0.00
R6/612	W21/612	35.04	35.04	0.00	0.00
R6/612	W22/612	10.63	10.63	0.00	0.00
R7/612	W23/612	18.90	18.90	0.00	0.00
R7/612	W24/612	35.89	35.89	0.00	0.00
R1/613	W1/613	27.14	27.14	0.00	0.00
R1/613	W2/613	34.83	34.83	0.00	0.00
R1/613	W3/613	34.61	34.61	0.00	0.00
R1/613	W4/613	34.51	34.51	0.00	0.00
R2/613	W5/613	34.53	34.53	0.00	0.00
R2/613	W6/613	34.33	34.33	0.00	0.00
R2/613	W7/613	34.24	34.24	0.00	0.00
R2/613	W8/613	19.24	19.24	0.00	0.00
R3/613	W9/613	19.05	19.05	0.00	0.00
R3/613	W10/613	33.70	33.70	0.00	0.00
R3/613	W11/613	33.83	33.83	0.00	0.00
R3/613	W12/613	34.03	34.03	0.00	0.00
R3/613	W13/613	34.17	34.17	0.00	0.00
R4/613	W14/613	34.04	34.04	0.00	0.00
R4/613	W15/613	34.44	34.44	0.00	0.00
R4/613	W16/613	34.40	34.40	0.00	0.00
R4/613	W17/613	34.61	34.61	0.00	0.00
R5/613	W18/613	34.72	34.72	0.00	0.00
R5/613	W19/613	34.92	34.92	0.00	0.00
R6/613	W20/613	35.03	35.03	0.00	0.00

Vertical Sky Component					
Room	**Window**	**Existing**	**Proposed**	**Loss**	**%**
R6/613	**W21/613**	35.17	35.17	0.00	0.00
R6/613	**W22/613**	10.86	10.86	0.00	0.00
R7/613	**W23/613**	19.19	19.19	0.00	0.00
R7/613	**W24/613**	39.52	39.52	0.00	0.00
R1/614	**W1/614**	28.92	28.92	0.00	0.00
R1/614	**W2/614**	34.97	34.97	0.00	0.00
R1/614	**W3/614**	34.75	34.75	0.00	0.00
R1/614	**W4/614**	34.65	34.65	0.00	0.00
R2/614	**W5/614**	34.67	34.67	0.00	0.00
R2/614	**W6/614**	34.47	34.47	0.00	0.00
R2/614	**W7/614**	34.39	34.39	0.00	0.00
R2/614	**W8/614**	21.11	21.11	0.00	0.00
R3/614	**W9/614**	20.97	20.97	0.00	0.00
R3/614	**W10/614**	33.86	33.86	0.00	0.00
R3/614	**W11/614**	33.98	33.98	0.00	0.00
R3/614	**W12/614**	34.18	34.18	0.00	0.00
R3/614	**W13/614**	34.31	34.31	0.00	0.00
R4/614	**W14/614**	34.18	34.18	0.00	0.00
R4/614	**W15/614**	34.58	34.58	0.00	0.00
R4/614	**W16/614**	34.54	34.54	0.00	0.00
R4/614	**W17/614**	34.75	34.75	0.00	0.00
R5/614	**W18/614**	34.86	34.86	0.00	0.00
R5/614	**W19/614**	35.05	35.05	0.00	0.00
R6/614	**W20/614**	35.16	35.16	0.00	0.00
R6/614	**W21/614**	35.29	35.29	0.00	0.00
R6/614	**W22/614**	22.00	22.00	0.00	0.00

		Vertical Sky Component			
Room	**Window**	**Existing**	**Proposed**	**Loss**	**%**
R7/614	**W23/614**	33.00	33.00	0.00	0.00
R7/614	**W24/614**	39.57	39.57	0.00	0.00
R5/6111	**W24/6111**	39.40	39.40	0.00	0.00
R5/6111	**W25/6111**	39.43	39.43	0.00	0.00
R5/6111	**W26/6111**	39.43	39.43	0.00	0.00
R5/6111	**W27/6111**	39.29	39.29	0.00	0.00
R5/6111	**W28/6111**	36.95	36.95	0.00	0.00
R5/6111	**W29/6111**	36.88	36.88	0.00	0.00
R5/6111	**W30/6111**	36.82	36.82	0.00	0.00
R6/6111	**W31/6111**	36.52	36.52	0.00	0.00
R6/6111	**W32/6111**	36.26	36.26	0.00	0.00
R6/6111	**W33/6111**	35.80	35.80	0.00	0.00
R6/6111	**W34/6111**	35.24	35.24	0.00	0.00
R7/6111	**W35/6111**	34.26	34.26	0.00	0.00
R7/6111	**W36/6111**	33.76	33.76	0.00	0.00
R7/6111	**W37/6111**	31.24	31.24	0.00	0.00
VESTRY, 1-5 FLITCROFT STREET					
R1/280	**W1/280**	10.84	10.82	0.02	0.18
R1/280	**W2/280**	13.19	12.77	0.42	3.18
R1/280	**W3/280**	24.31	24.31	0.00	0.00
R1/280	**W4/280**	22.13	22.13	0.00	0.00
R1/300	**W1/300**	13.92	12.99	0.93	6.68
R1/300	**W2/300**	2.70	2.64	0.06	2.22
R1/301	**W1/301**	16.66	15.82	0.84	5.04
R1/301	**W2/301**	4.13	4.07	0.06	1.45

Vertical Sky Component					
Room	**Window**	**Existing**	**Proposed**	**Loss**	**%**
R1/301	**W3/301**	4.07	4.01	0.06	1.47
R1/302	**W1/302**	26.39	25.85	0.54	2.05
R1/302	**W2/302**	33.22	33.22	0.00	0.00
1-3 DENMARK STREET					
R1/310	**W1/310**	16.75	15.53	1.22	7.28
R1/310	**W2/310**	20.31	19.02	1.29	6.35
R1/310	**W3/310**	7.64	6.22	1.42	18.59
R1/310	**W4/310**	11.74	11.39	0.35	2.98
R1/310	**W5/310**	12.06	11.91	0.15	1.24
R1/310	**W6/310**	6.72	6.72	0.00	0.00
R1/311	**W1/311**	23.42	22.40	1.02	4.36
R1/311	**W2/311**	23.87	22.80	1.07	4.48
R1/311	**W3/311**	24.19	23.07	1.12	4.63
R2/311	**W4/311**	24.50	23.28	1.22	4.98
R2/311	**W5/311**	24.50	23.24	1.26	5.14
R2/311	**W6/311**	24.54	23.22	1.32	5.38
R2/311	**W7/311**	20.23	18.74	1.49	7.37
R2/311	**W8/311**	18.60	18.08	0.52	2.80
R2/311	**W9/311**	18.39	17.95	0.44	2.39
R2/311	**W10/311**	18.31	17.95	0.36	1.97
R3/311	**W11/311**	18.70	18.44	0.26	1.39
R3/311	**W12/311**	18.73	18.53	0.20	1.07
R3/311	**W13/311**	18.49	18.33	0.16	0.87
R4/311	**W14/311**	18.18	18.08	0.10	0.55
R1/312	**W1/312**	26.11	25.21	0.90	3.45

Vertical Sky Component					
Room	**Window**	**Existing**	**Proposed**	**Loss**	**%**
R1/312	**W2/312**	26.35	25.40	0.95	3.61
R1/312	**W3/312**	26.51	25.52	0.99	3.73
R2/312	**W4/312**	26.62	25.54	1.08	4.06
R2/312	**W5/312**	26.59	25.47	1.12	4.21
R2/312	**W6/312**	26.59	25.41	1.18	4.44
R2/312	**W7/312**	23.61	22.21	1.40	5.93
R2/312	**W8/312**	23.75	23.23	0.52	2.19
R2/312	**W9/312**	23.55	23.08	0.47	2.00
R2/312	**W10/312**	23.40	23.02	0.38	1.62
R3/312	**W11/312**	23.78	23.51	0.27	1.14
R3/312	**W12/312**	23.83	23.60	0.23	0.97
R3/312	**W13/312**	23.57	23.36	0.21	0.89
R4/312	**W14/312**	23.32	23.16	0.16	0.69
R1/313	**W1/313**	27.89	27.11	0.78	2.80
R1/313	**W2/313**	28.08	27.26	0.82	2.92
R1/313	**W3/313**	28.21	27.36	0.85	3.01
R2/313	**W4/313**	28.36	27.43	0.93	3.28
R2/313	**W5/313**	28.38	27.41	0.97	3.42
R2/313	**W6/313**	28.41	27.40	1.01	3.56
R2/313	**W7/313**	26.63	25.43	1.20	4.51
R2/313	**W8/313**	28.53	28.06	0.47	1.65
R2/313	**W9/313**	28.57	28.15	0.42	1.47
R2/313	**W10/313**	28.47	28.11	0.36	1.26
R3/313	**W11/313**	28.69	28.40	0.29	1.01
R3/313	**W12/313**	28.83	28.58	0.25	0.87
R3/313	**W13/313**	28.71	28.47	0.24	0.84

		Vertical Sky Component			
Room	**Window**	**Existing**	**Proposed**	**Loss**	**%**
R4/313	**W14/313**	28.73	28.54	0.19	0.66
R1/314	**W1/314**	29.72	29.04	0.68	2.29
R1/314	**W2/314**	29.91	29.20	0.71	2.37
R1/314	**W3/314**	29.96	29.22	0.74	2.47
R2/314	**W4/314**	30.09	29.36	0.73	2.43
R2/314	**W5/314**	30.20	29.45	0.75	2.48
R2/314	**W6/314**	30.21	29.43	0.78	2.58
R2/314	**W7/314**	29.35	28.45	0.90	3.07
R2/314	**W8/314**	31.86	31.43	0.43	1.35
R2/314	**W9/314**	32.10	31.73	0.37	1.15
R2/314	**W10/314**	32.20	31.88	0.32	0.99
R3/314	**W11/314**	32.45	32.18	0.27	0.83
R3/314	**W12/314**	32.55	32.30	0.25	0.77
R3/314	**W13/314**	32.66	32.43	0.23	0.70
R4/314	**W14/314**	32.80	32.60	0.20	0.61
28 DENMARK STREET					
R1/440	**W1/440**	24.02	24.02	0.00	0.00
R1/440	**W2/440**	24.25	24.25	0.00	0.00
R1/440	**W3/440**	24.54	24.54	0.00	0.00
R1/440	**W4/440**	23.53	23.18	0.35	1.49
R1/440	**W5/440**	23.17	22.91	0.26	1.12
R1/440	**W6/440**	22.38	22.37	0.01	0.04
R1/440	**W7/440**	2.83	2.83	0.00	0.00
R1/440	**W8/440**	12.07	8.16	3.91	32.39
R1/440	**W9/440**	12.43	8.59	3.84	30.89
R1/440	**W10/440**	12.40	8.60	3.80	30.65

Vertical Sky Component					
Room	**Window**	**Existing**	**Proposed**	**Loss**	**%**
R1/441	**W1/441**	27.29	27.29	0.00	0.00
R1/441	**W2/441**	28.26	28.26	0.00	0.00
R1/441	**W3/441**	27.79	27.79	0.00	0.00
R1/441	**W4/441**	28.71	28.71	0.00	0.00
R1/441	**W5/441**	28.07	28.07	0.00	0.00
R1/441	**W6/441**	28.96	28.96	0.00	0.00
R1/441	**W7/441**	28.21	28.20	0.01	0.04
R1/441	**W8/441**	29.05	29.04	0.01	0.03
R1/441	**W9/441**	28.01	27.95	0.06	0.21
R1/441	**W10/441**	28.77	28.71	0.06	0.21
R1/441	**W11/441**	26.88	26.37	0.51	1.90
R1/441	**W12/441**	27.49	26.98	0.51	1.86
R1/441	**W13/441**	20.71	16.80	3.91	18.88
R1/441	**W14/441**	15.51	10.19	5.32	34.30
R1/441	**W15/441**	14.74	9.82	4.92	33.38
R1/441	**W17/441**	15.39	10.60	4.79	31.12
R1/442	**W1/442**	30.13	30.13	0.00	0.00
R1/442	**W2/442**	31.06	31.06	0.00	0.00
R1/442	**W3/442**	30.45	30.45	0.00	0.00
R1/442	**W4/442**	31.30	31.30	0.00	0.00
R1/442	**W5/442**	30.60	30.60	0.00	0.00
R1/442	**W6/442**	31.40	31.40	0.00	0.00
R1/442	**W7/442**	30.61	30.60	0.01	0.03
R1/442	**W8/442**	31.35	31.34	0.01	0.03
R1/442	**W9/442**	30.19	30.13	0.06	0.20
R1/442	**W10/442**	30.84	30.79	0.05	0.16
R1/442	**W11/442**	28.67	28.15	0.52	1.81
R1/442	**W12/442**	29.21	28.67	0.54	1.85
R1/442	**W13/442**	22.53	18.08	4.45	19.75
R1/442	**W14/442**	17.58	11.32	6.26	35.61
R1/442	**W16/442**	16.77	11.03	5.74	34.23
R1/442	**W18/442**	17.35	11.85	5.50	31.70

		Vertical Sky Component			
Room	Window	Existing	Proposed	Loss	%
R1/443	**W1/443**	32.94	32.94	0.00	0.00
R1/443	**W2/443**	30.15	29.60	0.55	1.82
R1/443	**W3/443**	30.58	30.04	0.54	1.77
R1/443	**W4/443**	24.00	19.32	4.68	19.50
R1/443	**W5/443**	19.26	12.56	6.70	34.79
R1/443	**W6/443**	18.65	12.51	6.14	32.92
R1/443	**W7/443**	19.16	13.28	5.88	30.69
R1/444	**W1/444**	34.59	34.59	0.00	0.00
R1/444	**W2/444**	31.23	30.83	0.40	1.28
R1/444	**W3/444**	32.89	32.89	0.00	0.00
R1/444	**W4/444**	31.64	31.05	0.59	1.86
R1/444	**W5/444**	25.40	20.74	4.66	18.35
R1/444	**W6/444**	21.25	14.71	6.54	30.78
R1/444	**W7/444**	20.98	16.99	3.99	19.02
R1/444	**W8/444**	21.38	15.42	5.96	27.88
R1/445	**W1/445**	29.11	28.63	0.48	1.65
59 ST. GILES HIGH STREET					
R1/430	**W1/430**	13.08	9.63	3.45	26.38
R1/430	**W2/430**	3.57	1.77	1.80	50.42
R1/431	**W1/431**	14.29	10.37	3.92	27.43
R1/431	**W2/431**	14.27	10.71	3.56	24.95
R1/432	**W1/432**	15.48	11.36	4.12	26.61
R1/432	**W2/432**	15.60	11.76	3.84	24.62
R1/433	**W1/433**	16.87	12.45	4.42	26.20
R1/433	**W2/433**	17.01	12.94	4.07	23.93

		Vertical Sky Component			
Room	Window	Existing	Proposed	Loss	%
1-53 MATILDA APARTMENTS, 4 EARNSHAW STREET					
R1/601	**W1/601**	8.27	8.27	0.00	0.00
R1/601	**W2/601**	17.18	17.18	0.00	0.00
R1/601	**W3/601**	17.42	17.42	0.00	0.00
R1/601	**W4/601**	17.57	17.57	0.00	0.00
R1/601	**W73/601**	7.58	7.58	0.00	0.00
R1/601	**W74/601**	5.03	5.03	0.00	0.00
R2/601	**W5/601**	17.63	17.63	0.00	0.00
R2/601	**W6/601**	17.66	17.66	0.00	0.00
R2/601	**W7/601**	17.61	17.61	0.00	0.00
R2/601	**W8/601**	5.56	5.56	0.00	0.00
R3/601	**W9/601**	10.95	10.95	0.00	0.00
R3/601	**W10/601**	14.36	10.02	4.34	30.22
R3/601	**W11/601**	14.92	10.04	4.88	32.71
R3/601	**W12/601**	15.54	10.18	5.36	34.49
R3/601	**W13/601**	16.17	10.30	5.87	36.30
R4/601	**W14/601**	16.77	10.39	6.38	38.04
R4/601	**W15/601**	17.65	10.80	6.85	38.81
R4/601	**W16/601**	18.50	11.09	7.41	40.05
R5/601	**W17/601**	19.39	11.50	7.89	40.69
R5/601	**W18/601**	20.29	12.07	8.22	40.51
R5/601	**W19/601**	21.19	12.56	8.63	40.73
R6/601	**W20/601**	22.01	13.24	8.77	39.85
R6/601	**W21/601**	22.91	14.05	8.86	38.67
R6/601	**W22/601**	4.50	4.50	0.00	0.00
R7/601	**W23/601**	9.29	5.20	4.09	44.03

		Vertical Sky Component			
Room	Window	Existing	Proposed	Loss	%
R7/601	W24/601	9.52	9.36	0.16	1.68
R8/601	W25/601	19.20	13.11	6.09	31.72
R9/601	W26/601	9.64	5.67	3.97	41.18
R9/601	W27/601	28.51	23.15	5.36	18.80
R9/601	W28/601	28.87	23.93	4.94	17.11
R10/601	W29/601	29.11	24.84	4.27	14.67
R10/601	W30/601	29.20	25.45	3.75	12.84
R10/601	W31/601	29.26	26.03	3.23	11.04
R10/601	W32/601	11.33	11.33	0.00	0.00
R11/601	W33/601	7.65	7.65	0.00	0.00
R11/601	W34/601	31.18	31.18	0.00	0.00
R11/601	W35/601	31.23	31.23	0.00	0.00
R1/602	W1/602	9.00	9.00	0.00	0.00
R1/602	W2/602	18.64	18.64	0.00	0.00
R1/602	W3/602	18.90	18.90	0.00	0.00
R2/602	W4/602	19.09	19.09	0.00	0.00
R2/602	W5/602	19.17	19.17	0.00	0.00
R3/602	W6/602	19.21	19.21	0.00	0.00
R3/602	W7/602	19.16	19.16	0.00	0.00
R3/602	W8/602	6.36	6.36	0.00	0.00
R4/602	W9/602	11.63	11.63	0.00	0.00
R4/602	W10/602	16.62	11.44	5.18	31.17
R4/602	W11/602	17.33	11.44	5.89	33.99
R5/602	W12/602	18.10	11.55	6.55	36.19

		Vertical Sky Component			
Room	Window	Existing	Proposed	Loss	%
R5/602	W13/602	18.87	11.66	7.21	38.21
R6/602	W14/602	19.57	11.71	7.86	40.16
R6/602	W15/602	20.55	12.10	8.45	41.12
R7/602	W16/602	21.55	12.36	9.19	42.65
R7/602	W17/602	22.50	12.75	9.75	43.33
R8/602	W18/602	23.40	13.30	10.10	43.16
R8/602	W19/602	24.23	13.77	10.46	43.17
R9/602	W20/602	24.94	14.43	10.51	42.14
R9/602	W21/602	25.65	15.18	10.47	40.82
R9/602	W22/602	5.06	5.06	0.00	0.00
R10/602	W23/602	11.25	5.70	5.55	49.33
R10/602	W24/602	9.91	9.74	0.17	1.72
R11/602	W25/602	20.58	14.04	6.54	31.78
R12/602	W26/602	10.63	6.40	4.23	39.79
R12/602	W27/602	30.23	24.63	5.60	18.52
R12/602	W28/602	30.58	25.45	5.13	16.78
R13/602	W29/602	30.80	26.38	4.42	14.35
R13/602	W30/602	30.87	27.02	3.85	12.47
R13/602	W31/602	30.92	27.63	3.29	10.64
R13/602	W32/602	12.27	12.27	0.00	0.00
R14/602	W33/602	8.34	8.34	0.00	0.00
R14/602	W34/602	32.75	32.75	0.00	0.00
R14/602	W35/602	32.78	32.78	0.00	0.00

		Vertical Sky Component			
Room	Window	Existing	Proposed	Loss	%
R1/603	W1/603	9.88	9.88	0.00	0.00
R1/603	W2/603	20.27	20.27	0.00	0.00
R1/603	W3/603	20.54	20.54	0.00	0.00
R2/603	W4/603	20.75	20.75	0.00	0.00
R2/603	W5/603	20.87	20.87	0.00	0.00
R3/603	W6/603	20.90	20.90	0.00	0.00
R3/603	W7/603	20.85	20.85	0.00	0.00
R3/603	W8/603	7.31	7.31	0.00	0.00
R4/603	W9/603	12.32	12.32	0.00	0.00
R4/603	W10/603	18.79	13.17	5.62	29.91
R4/603	W11/603	19.57	13.16	6.41	32.75
R5/603	W12/603	20.43	13.25	7.18	35.14
R5/603	W13/603	21.28	13.34	7.94	37.31
R5/603	W14/603	22.05	13.32	8.73	39.59
R5/603	W15/603	23.06	13.70	9.36	40.59
R6/603	W16/603	24.09	13.91	10.18	42.26
R6/603	W17/603	25.03	14.27	10.76	42.99
R7/603	W18/603	25.82	14.78	11.04	42.76
R7/603	W19/603	26.56	15.24	11.32	42.62
R8/603	W20/603	27.18	15.85	11.33	41.69
R8/603	W21/603	27.85	16.57	11.28	40.50
R8/603	W22/603	5.57	5.57	0.00	0.00
R9/603	W23/603	12.90	6.19	6.71	52.02
R9/603	W24/603	10.28	10.11	0.17	1.65

		Vertical Sky Component			
Room	Window	Existing	Proposed	Loss	%
R10/603	W25/603	21.69	15.07	6.62	30.52
R11/603	W26/603	11.46	7.18	4.28	37.35
R11/603	W27/603	31.66	26.07	5.59	17.66
R11/603	W28/603	31.99	26.90	5.09	15.91
R12/603	W29/603	32.20	27.84	4.36	13.54
R12/603	W30/603	32.25	28.49	3.76	11.66
R12/603	W31/603	32.30	29.10	3.20	9.91
R12/603	W32/603	13.36	13.36	0.00	0.00
R1/604	W1/604	10.96	10.96	0.00	0.00
R1/604	W2/604	22.09	22.09	0.00	0.00
R1/604	W3/604	22.36	22.36	0.00	0.00
R2/604	W4/604	22.58	22.58	0.00	0.00
R2/604	W5/604	22.72	22.72	0.00	0.00
R3/604	W6/604	22.75	22.75	0.00	0.00
R3/604	W7/604	22.70	22.70	0.00	0.00
R3/604	W8/604	8.46	8.46	0.00	0.00
R4/604	W9/604	13.02	13.02	0.00	0.00
R4/604	W10/604	20.69	15.29	5.40	26.10
R4/604	W11/604	21.44	15.27	6.17	28.78
R5/604	W12/604	22.24	15.32	6.92	31.12
R5/604	W13/604	23.06	15.39	7.67	33.26
R5/604	W14/604	23.84	15.32	8.52	35.74
R5/604	W15/604	24.85	15.67	9.18	36.94
R6/604	W16/604	25.84	15.82	10.02	38.78
R6/604	W17/604	26.76	16.13	10.63	39.72

		Vertical Sky Component			
Room	Window	Existing	Proposed	Loss	%
R7/604	W18/604	27.46	16.58	10.88	39.62
R7/604	W19/604	28.13	17.01	11.12	39.53
R8/604	W20/604	28.67	17.57	11.10	38.72
R8/604	W21/604	29.27	18.24	11.03	37.68
R8/604	W22/604	6.39	6.39	0.00	0.00
R9/604	W23/604	14.10	6.64	7.46	52.91
R9/604	W24/604	10.64	10.46	0.18	1.69
R10/604	W25/604	22.50	16.17	6.33	28.13
R11/604	W26/604	12.10	8.02	4.08	33.72
R11/604	W27/604	32.81	27.49	5.32	16.21
R11/604	W28/604	33.14	28.33	4.81	14.51
R12/604	W29/604	33.32	29.24	4.08	12.24
R12/604	W30/604	33.38	29.88	3.50	10.49
R12/604	W31/604	33.42	30.47	2.95	8.83
R12/604	W32/604	14.31	14.31	0.00	0.00
R13/604	W33/604	10.01	10.01	0.00	0.00
R13/604	W34/604	35.03	35.03	0.00	0.00
R13/604	W35/604	35.02	35.02	0.00	0.00
R13/604	W36/604	35.10	35.10	0.00	0.00
R1/605	W1/605	12.28	12.28	0.00	0.00
R1/605	W2/605	24.14	24.14	0.00	0.00
R1/605	W3/605	24.38	24.38	0.00	0.00
R1/605	W4/605	24.59	24.59	0.00	0.00
R2/605	W5/605	24.75	24.75	0.00	0.00

		Vertical Sky Component			
Room	Window	Existing	Proposed	Loss	%
R2/605	W6/605	24.75	24.75	0.00	0.00
R2/605	W7/605	24.70	24.70	0.00	0.00
R2/605	W8/605	9.79	9.79	0.00	0.00
R3/605	W9/605	13.74	13.74	0.00	0.00
R3/605	W10/605	22.74	17.86	4.88	21.46
R3/605	W11/605	23.41	17.83	5.58	23.84
R4/605	W12/605	24.14	17.85	6.29	26.06
R4/605	W13/605	24.88	17.90	6.98	28.05
R5/605	W14/605	25.55	17.75	7.80	30.53
R5/605	W15/605	26.49	18.08	8.41	31.75
R5/605	W16/605	27.34	18.14	9.20	33.65
R5/605	W17/605	28.15	18.40	9.75	34.64
R6/605	W18/605	28.79	18.75	10.04	34.87
R6/605	W19/605	29.41	19.15	10.26	34.89
R7/605	W20/605	29.93	19.60	10.33	34.51
R7/605	W21/605	30.44	20.21	10.23	33.61
R7/605	W22/605	6.36	6.36	0.00	0.00
R8/605	W23/605	15.15	7.01	8.14	53.73
R8/605	W24/605	10.95	10.79	0.16	1.46
R9/605	W25/605	23.06	17.38	5.68	24.63
R10/605	W26/605	12.57	8.89	3.68	29.28
R10/605	W27/605	33.64	28.84	4.80	14.27
R10/605	W28/605	33.96	29.65	4.31	12.69
R11/605	W29/605	34.13	30.50	3.63	10.64

		Vertical Sky Component			
Room	Window	Existing	Proposed	Loss	%
R11/605	W30/605	34.19	31.10	3.09	9.04
R11/605	W31/605	34.25	31.65	2.60	7.59
R11/605	W32/605	15.06	15.06	0.00	0.00
R12/605	W33/605	10.63	10.63	0.00	0.00
R12/605	W34/605	35.92	35.92	0.00	0.00
R12/605	W35/605	35.92	35.92	0.00	0.00
R1/606	W1/606	13.89	13.89	0.00	0.00
R1/606	W2/606	26.42	26.42	0.00	0.00
R1/606	W3/606	26.59	26.59	0.00	0.00
R1/606	W4/606	26.76	26.76	0.00	0.00
R2/606	W5/606	26.91	26.91	0.00	0.00
R2/606	W6/606	26.87	26.87	0.00	0.00
R2/606	W7/606	26.81	26.81	0.00	0.00
R2/606	W8/606	11.32	11.32	0.00	0.00
R3/606	W9/606	14.46	14.46	0.00	0.00
R3/606	W10/606	25.00	20.89	4.11	16.44
R3/606	W11/606	25.57	20.85	4.72	18.46
R4/606	W12/606	26.19	20.85	5.34	20.39
R4/606	W13/606	26.83	20.87	5.96	22.21
R5/606	W14/606	27.33	20.67	6.66	24.37
R5/606	W15/606	28.16	20.96	7.20	25.57
R5/606	W16/606	28.83	20.93	7.90	27.40
R5/606	W17/606	29.53	21.12	8.41	28.48
R6/606	W18/606	30.07	21.37	8.70	28.93
R6/606	W19/606	30.62	21.73	8.89	29.03

		Vertical Sky Component			
Room	Window	Existing	Proposed	Loss	%
R7/606	W20/606	31.06	22.06	9.00	28.98
R7/606	W21/606	31.50	22.58	8.92	28.32
R7/606	W22/606	6.66	6.66	0.00	0.00
R8/606	W23/606	16.08	8.91	7.17	44.59
R8/606	W24/606	11.28	11.15	0.13	1.15
R9/606	W25/606	23.56	18.73	4.83	20.50
R10/606	W26/606	13.16	10.03	3.13	23.78
R10/606	W27/606	34.31	30.22	4.09	11.92
R10/606	W28/606	34.64	30.98	3.66	10.57
R11/606	W29/606	34.78	31.72	3.06	8.80
R11/606	W30/606	34.84	32.26	2.58	7.41
R11/606	W31/606	34.92	32.75	2.17	6.21
R11/606	W32/606	15.73	15.73	0.00	0.00
R12/606	W33/606	11.10	11.10	0.00	0.00
R12/606	W34/606	36.71	36.71	0.00	0.00
R12/606	W35/606	36.70	36.70	0.00	0.00
R1/607	W1/607	15.76	15.76	0.00	0.00
R1/607	W2/607	28.87	28.87	0.00	0.00
R1/607	W3/607	28.92	28.92	0.00	0.00
R1/607	W4/607	29.02	29.02	0.00	0.00
R2/607	W5/607	29.13	29.13	0.00	0.00
R2/607	W6/607	29.03	29.03	0.00	0.00
R2/607	W7/607	28.96	28.96	0.00	0.00
R2/607	W8/607	12.98	12.98	0.00	0.00
R3/607	W9/607	15.18	15.18	0.00	0.00

		Vertical Sky Component			
Room	Window	Existing	Proposed	Loss	%
R3/607	W10/607	27.45	24.28	3.17	11.55
R3/607	W11/607	27.90	24.25	3.65	13.08
R4/607	W12/607	28.39	24.25	4.14	14.58
R4/607	W13/607	28.89	24.27	4.62	15.99
R5/607	W14/607	29.20	24.02	5.18	17.74
R5/607	W15/607	29.92	24.28	5.64	18.85
R5/607	W16/607	30.37	24.17	6.20	20.41
R5/607	W17/607	30.93	24.32	6.61	21.37
R6/607	W18/607	31.35	24.47	6.88	21.95
R6/607	W19/607	31.80	24.78	7.02	22.08
R7/607	W20/607	32.14	25.01	7.13	22.18
R7/607	W21/607	32.50	25.41	7.09	21.82
R7/607	W22/607	6.92	6.92	0.00	0.00
R8/607	W23/607	16.87	11.19	5.68	33.67
R8/607	W24/607	11.71	11.60	0.11	0.94
R9/607	W25/607	23.99	20.23	3.76	15.67
R10/607	W26/607	13.76	11.31	2.45	17.81
R10/607	W27/607	34.84	31.65	3.19	9.16
R10/607	W28/607	35.17	32.33	2.84	8.08
R11/607	W29/607	35.29	32.92	2.37	6.72
R11/607	W30/607	35.34	33.35	1.99	5.63
R11/607	W31/607	35.44	33.78	1.66	4.68
R11/607	W32/607	16.32	16.32	0.00	0.00
R12/607	W33/607	11.44	11.44	0.00	0.00

		Vertical Sky Component			
Room	Window	Existing	Proposed	Loss	%
R12/607	W34/607	37.40	37.40	0.00	0.00
R12/607	W35/607	37.39	37.39	0.00	0.00
R1/608	W1/608	17.87	17.87	0.00	0.00
R1/608	W2/608	31.33	31.33	0.00	0.00
R1/608	W3/608	31.22	31.22	0.00	0.00
R1/608	W4/608	31.22	31.22	0.00	0.00
R2/608	W5/608	31.27	31.27	0.00	0.00
R2/608	W6/608	31.10	31.10	0.00	0.00
R2/608	W7/608	31.01	31.01	0.00	0.00
R2/608	W8/608	14.69	14.69	0.00	0.00
R3/608	W9/608	15.85	15.85	0.00	0.00
R3/608	W10/608	29.94	27.81	2.13	7.11
R3/608	W11/608	30.25	27.80	2.45	8.10
R4/608	W12/608	30.63	27.82	2.81	9.17
R4/608	W13/608	30.97	27.85	3.12	10.07
R5/608	W14/608	31.08	27.58	3.50	11.26
R5/608	W15/608	31.66	27.85	3.81	12.03
R5/608	W16/608	31.89	27.68	4.21	13.20
R5/608	W17/608	32.30	27.81	4.49	13.90
R6/608	W18/608	32.58	27.88	4.70	14.43
R6/608	W19/608	32.93	28.16	4.77	14.49
R7/608	W20/608	33.16	28.28	4.88	14.72
R7/608	W21/608	33.42	28.56	4.86	14.54
R7/608	W22/608	7.15	7.15	0.00	0.00
R8/608	W23/608	17.60	13.67	3.93	22.33

		Vertical Sky Component			
Room	Window	Existing	Proposed	Loss	%
R8/608	W24/608	12.48	12.40	0.08	0.64
R9/608	W25/608	24.46	21.88	2.58	10.55
R10/608	W26/608	14.31	12.64	1.67	11.67
R10/608	W27/608	35.27	33.12	2.15	6.10
R10/608	W28/608	35.60	33.69	1.91	5.37
R11/608	W29/608	35.70	34.12	1.58	4.43
R11/608	W30/608	35.73	34.40	1.33	3.72
R11/608	W31/608	35.85	34.74	1.11	3.10
R11/608	W32/608	16.81	16.81	0.00	0.00
R12/608	W33/608	11.72	11.72	0.00	0.00
R12/608	W34/608	37.93	37.93	0.00	0.00
R12/608	W35/608	37.94	37.94	0.00	0.00
R1/609	W1/609	20.08	20.08	0.00	0.00
R1/609	W2/609	33.34	33.34	0.00	0.00
R1/609	W3/609	33.10	33.10	0.00	0.00
R1/609	W4/609	33.01	33.01	0.00	0.00
R2/609	W5/609	33.03	33.03	0.00	0.00
R2/609	W6/609	32.83	32.83	0.00	0.00
R2/609	W7/609	32.74	32.74	0.00	0.00
R2/609	W8/609	16.35	16.35	0.00	0.00
R3/609	W9/609	16.55	16.55	0.00	0.00
R3/609	W10/609	32.23	31.04	1.19	3.69
R3/609	W11/609	32.41	31.06	1.35	4.17
R4/609	W12/609	32.66	31.12	1.54	4.72
R4/609	W13/609	32.85	31.16	1.69	5.14

		Vertical Sky Component			
Room	Window	Existing	Proposed	Loss	%
R5/609	W14/609	32.79	30.91	1.88	5.73
R5/609	W15/609	33.25	31.21	2.04	6.14
R5/609	W16/609	33.27	31.02	2.25	6.76
R5/609	W17/609	33.54	31.14	2.40	7.16
R6/609	W18/609	33.69	31.17	2.52	7.48
R6/609	W19/609	33.94	31.38	2.56	7.54
R7/609	W20/609	34.08	31.45	2.63	7.72
R7/609	W21/609	34.24	31.63	2.61	7.62
R7/609	W22/609	7.34	7.34	0.00	0.00
R8/609	W23/609	18.24	16.08	2.16	11.84
R8/609	W24/609	14.35	14.31	0.04	0.28
R9/609	W25/609	25.15	23.73	1.42	5.65
R10/609	W26/609	14.79	13.87	0.92	6.22
R10/609	W27/609	35.63	34.53	1.10	3.09
R10/609	W28/609	35.95	34.97	0.98	2.73
R11/609	W29/609	36.04	35.23	0.81	2.25
R11/609	W30/609	36.05	35.38	0.67	1.86
R11/609	W31/609	36.17	35.61	0.56	1.55
R11/609	W32/609	17.25	17.25	0.00	0.00
R12/609	W33/609	11.97	11.97	0.00	0.00
R12/609	W34/609	38.34	38.34	0.00	0.00
R12/609	W35/609	38.35	38.35	0.00	0.00
R1/610	W1/610	22.37	22.37	0.00	0.00
R1/610	W2/610	34.26	34.26	0.00	0.00

Centrepoint
Proposed Scheme 17/03/13 IR13 - B
DAYLIGHT ANALYSIS

		Vertical Sky Component			
Room	Window	Existing	Proposed	Loss	%
R1/610	W3/610	34.02	34.02	0.00	0.00
R2/610	W4/610	33.92	33.92	0.00	0.00
R2/610	W5/610	33.95	33.95	0.00	0.00
R3/610	W6/610	33.75	33.75	0.00	0.00
R3/610	W7/610	33.66	33.66	0.00	0.00
R3/610	W8/610	17.83	17.83	0.00	0.00
R4/610	W9/610	17.61	17.61	0.00	0.00
R4/610	W10/610	33.26	32.98	0.28	0.84
R4/610	W11/610	33.39	33.07	0.32	0.96
R5/610	W12/610	33.59	33.25	0.34	1.01
R5/610	W13/610	33.73	33.36	0.37	1.10
R5/610	W14/610	33.60	33.20	0.40	1.19
R5/610	W15/610	34.02	33.59	0.43	1.26
R5/610	W16/610	33.97	33.51	0.46	1.35
R6/610	W17/610	34.19	33.70	0.49	1.43
R6/610	W18/610	34.30	33.79	0.51	1.49
R7/610	W19/610	34.51	33.99	0.52	1.51
R7/610	W20/610	34.63	34.09	0.54	1.56
R7/610	W21/610	34.76	34.23	0.53	1.52
R7/610	W22/610	7.83	7.83	0.00	0.00
R8/610	W23/610	18.27	17.73	0.54	2.96
R8/610	W24/610	19.41	19.41	0.00	0.00
R9/610	W25/610	27.78	27.42	0.36	1.30
R10/610	W26/610	15.35	15.11	0.24	1.56

		Vertical Sky Component			
Room	Window	Existing	Proposed	Loss	%
R10/610	W27/610	35.89	35.71	0.18	0.50
R10/610	W28/610	36.19	36.04	0.15	0.41
R11/610	W29/610	36.28	36.16	0.12	0.33
R11/610	W30/610	36.29	36.20	0.09	0.25
R11/610	W31/610	36.41	36.34	0.07	0.19
R11/610	W32/610	28.10	28.10	0.00	0.00
R12/610	W33/610	22.46	22.46	0.00	0.00
R12/610	W34/610	38.57	38.57	0.00	0.00
R12/610	W35/610	38.59	38.59	0.00	0.00
R1/611	W1/611	24.81	24.81	0.00	0.00
R1/611	W2/611	34.57	34.57	0.00	0.00
R1/611	W3/611	34.33	34.33	0.00	0.00
R1/611	W4/611	34.23	34.23	0.00	0.00
R2/611	W5/611	34.25	34.25	0.00	0.00
R2/611	W6/611	34.05	34.05	0.00	0.00
R2/611	W7/611	33.96	33.96	0.00	0.00
R2/611	W8/611	18.67	18.67	0.00	0.00
R3/611	W9/611	18.49	18.49	0.00	0.00
R3/611	W10/611	33.41	33.41	0.00	0.00
R3/611	W11/611	33.54	33.54	0.00	0.00
R3/611	W12/611	33.74	33.74	0.00	0.00
R3/611	W13/611	33.88	33.88	0.00	0.00
R4/611	W14/611	33.75	33.75	0.00	0.00
R4/611	W15/611	34.17	34.17	0.00	0.00
R4/611	W16/611	34.12	34.12	0.00	0.00
R4/611	W17/611	34.34	34.34	0.00	0.00

		Vertical Sky Component			
Room	Window	Existing	Proposed	Loss	%
R5/611	W18/611	34.45	34.45	0.00	0.00
R5/611	W19/611	34.66	34.66	0.00	0.00
R6/611	W20/611	34.77	34.77	0.00	0.00
R6/611	W21/611	34.90	34.90	0.00	0.00
R6/611	W22/611	10.48	10.48	0.00	0.00
R7/611	W23/611	18.64	18.64	0.00	0.00
R7/611	W24/611	26.74	26.74	0.00	0.00
R1/612	W1/612	26.03	26.03	0.00	0.00
R1/612	W2/612	34.70	34.70	0.00	0.00
R1/612	W3/612	34.47	34.47	0.00	0.00
R1/612	W4/612	34.37	34.37	0.00	0.00
R2/612	W5/612	34.39	34.39	0.00	0.00
R2/612	W6/612	34.19	34.19	0.00	0.00
R2/612	W7/612	34.10	34.10	0.00	0.00
R2/612	W8/612	18.86	18.86	0.00	0.00
R3/612	W9/612	18.67	18.67	0.00	0.00
R3/612	W10/612	33.56	33.56	0.00	0.00
R3/612	W11/612	33.69	33.69	0.00	0.00
R3/612	W12/612	33.89	33.89	0.00	0.00
R3/612	W13/612	34.03	34.03	0.00	0.00
R4/612	W14/612	33.90	33.90	0.00	0.00
R4/612	W15/612	34.31	34.31	0.00	0.00
R4/612	W16/612	34.27	34.27	0.00	0.00
R4/612	W17/612	34.48	34.48	0.00	0.00
R5/612	W18/612	34.59	34.59	0.00	0.00
R5/612	W19/612	34.80	34.80	0.00	0.00

		Vertical Sky Component			
Room	Window	Existing	Proposed	Loss	%
R6/612	W20/612	34.91	34.91	0.00	0.00
R6/612	W21/612	35.04	35.04	0.00	0.00
R6/612	W22/612	10.63	10.63	0.00	0.00
R7/612	W23/612	18.90	18.90	0.00	0.00
R7/612	W24/612	35.89	35.89	0.00	0.00
R1/613	W1/613	27.14	27.14	0.00	0.00
R1/613	W2/613	34.83	34.83	0.00	0.00
R1/613	W3/613	34.61	34.61	0.00	0.00
R1/613	W4/613	34.51	34.51	0.00	0.00
R2/613	W5/613	34.53	34.53	0.00	0.00
R2/613	W6/613	34.33	34.33	0.00	0.00
R2/613	W7/613	34.24	34.24	0.00	0.00
R2/613	W8/613	19.24	19.24	0.00	0.00
R3/613	W9/613	19.05	19.05	0.00	0.00
R3/613	W10/613	33.70	33.70	0.00	0.00
R3/613	W11/613	33.83	33.83	0.00	0.00
R3/613	W12/613	34.03	34.03	0.00	0.00
R3/613	W13/613	34.17	34.17	0.00	0.00
R4/613	W14/613	34.04	34.04	0.00	0.00
R4/613	W15/613	34.44	34.44	0.00	0.00
R4/613	W16/613	34.40	34.40	0.00	0.00
R4/613	W17/613	34.61	34.61	0.00	0.00
R5/613	W18/613	34.72	34.72	0.00	0.00
R5/613	W19/613	34.92	34.92	0.00	0.00
R6/613	W20/613	35.03	35.03	0.00	0.00

		Vertical Sky Component			
Room	Window	Existing	Proposed	Loss	%
R6/613	W21/613	35.17	35.17	0.00	0.00
R6/613	W22/613	10.86	10.86	0.00	0.00
R7/613	W23/613	19.19	19.19	0.00	0.00
R7/613	W24/613	39.52	39.52	0.00	0.00
R1/614	W1/614	28.92	28.92	0.00	0.00
R1/614	W2/614	34.97	34.97	0.00	0.00
R1/614	W3/614	34.75	34.75	0.00	0.00
R1/614	W4/614	34.65	34.65	0.00	0.00
R2/614	W5/614	34.67	34.67	0.00	0.00
R2/614	W6/614	34.47	34.47	0.00	0.00
R2/614	W7/614	34.39	34.39	0.00	0.00
R2/614	W8/614	21.11	21.11	0.00	0.00
R3/614	W9/614	20.97	20.97	0.00	0.00
R3/614	W10/614	33.86	33.86	0.00	0.00
R3/614	W11/614	33.98	33.98	0.00	0.00
R3/614	W12/614	34.18	34.18	0.00	0.00
R3/614	W13/614	34.31	34.31	0.00	0.00
R4/614	W14/614	34.18	34.18	0.00	0.00
R4/614	W15/614	34.58	34.58	0.00	0.00
R4/614	W16/614	34.54	34.54	0.00	0.00
R4/614	W17/614	34.75	34.75	0.00	0.00
R5/614	W18/614	34.86	34.86	0.00	0.00
R5/614	W19/614	35.05	35.05	0.00	0.00
R6/614	W20/614	35.16	35.16	0.00	0.00
R6/614	W21/614	35.29	35.29	0.00	0.00
R6/614	W22/614	22.00	22.00	0.00	0.00

		Vertical Sky Component			
Room	Window	Existing	Proposed	Loss	%
R7/614	**W23/614**	33.00	33.00	0.00	0.00
R7/614	**W24/614**	39.57	39.57	0.00	0.00
R5/6111	**W24/6111**	39.40	39.40	0.00	0.00
R5/6111	**W25/6111**	39.43	39.43	0.00	0.00
R5/6111	**W26/6111**	39.43	39.43	0.00	0.00
R5/6111	**W27/6111**	39.29	39.29	0.00	0.00
R5/6111	**W28/6111**	36.95	36.95	0.00	0.00
R5/6111	**W29/6111**	36.88	36.88	0.00	0.00
R5/6111	**W30/6111**	36.82	36.82	0.00	0.00
R6/6111	**W31/6111**	36.52	36.52	0.00	0.00
R6/6111	**W32/6111**	36.26	36.26	0.00	0.00
R6/6111	**W33/6111**	35.80	35.80	0.00	0.00
R6/6111	**W34/6111**	35.24	35.24	0.00	0.00
R7/6111	**W35/6111**	34.26	34.26	0.00	0.00
R7/6111	**W36/6111**	33.76	33.76	0.00	0.00
R7/6111	**W37/6111**	31.24	31.24	0.00	0.00
ST. GILES IN-THE-FIELDS CHURCH					
R1/290	**W1/290**	21.88	19.67	2.21	10.10
R1/290	**W2/290**	21.74	19.67	2.07	9.52
R1/290	**W3/290**	20.83	19.20	1.63	7.83
R1/290	**W4/290**	20.00	18.70	1.30	6.50
R1/290	**W5/290**	19.16	18.40	0.76	3.97
R1/290	**W6/290**	18.58	18.12	0.46	2.48
R1/290	**W7/290**	8.67	8.67	0.00	0.00
R1/290	**W8/290**	20.29	18.09	2.20	10.84
R1/290	**W9/290**	19.46	17.71	1.75	8.99
R1/290	**W10/290**	18.68	17.30	1.38	7.39

		Vertical Sky Component			
Room	Window	Existing	Proposed	Loss	%
R1/290	W11/290	17.85	17.06	0.79	4.43
R1/290	W12/290	17.29	16.80	0.49	2.83
R1/290	W13/290	24.13	24.13	0.00	0.00
R1/290	W14/290	24.71	24.68	0.03	0.12
R1/290	W15/290	24.32	24.27	0.05	0.21
R1/290	W16/290	18.64	18.64	0.00	0.00
R1/290	W17/290	20.25	20.20	0.05	0.25
R1/290	W18/290	30.35	30.35	0.00	0.00
R1/290	W19/290	31.02	31.02	0.00	0.00
R1/290	W20/290	31.11	31.11	0.00	0.00
R1/290	W21/290	31.23	31.23	0.00	0.00
R1/290	W22/290	31.24	31.24	0.00	0.00
R1/290	W23/290	31.16	31.16	0.00	0.00
R1/290	W24/290	17.05	17.05	0.00	0.00
R1/290	W25/290	29.48	29.48	0.00	0.00
R1/290	W26/290	29.56	29.56	0.00	0.00
R1/290	W27/290	29.52	29.52	0.00	0.00
R1/290	W28/290	29.18	29.18	0.00	0.00
R1/290	W29/290	28.60	28.60	0.00	0.00
R1/291	W1/291	33.65	33.65	0.00	0.00
R1/291	W2/291	31.41	31.38	0.03	0.10
R1/291	W3/291	26.14	24.99	1.15	4.40
R1/292	W2/292	37.13	37.13	0.00	0.00
R1/292	W3/292	36.49	36.46	0.03	0.08
R1/292	W4/292	30.14	29.30	0.84	2.79
R1/293	W1/293	39.18	39.18	0.00	0.00
R1/293	W2/293	39.09	39.09	0.00	0.00
R1/293	W3/293	38.77	38.77	0.00	0.00
R1/293	W4/293	36.92	36.92	0.00	0.00
R1/293	W5/293	34.58	34.39	0.19	0.55

		Vertical Sky Component			
Room	**Window**	**Existing**	**Proposed**	**Loss**	**%**
R1/293	**W6/293**	33.43	33.13	0.30	0.90
R1/293	**W7/293**	35.44	35.21	0.23	0.65
R1/293	**W8/293**	37.84	37.83	0.01	0.03
R1/293	**W9/293**	39.32	39.32	0.00	0.00
R1/293	**W10/293**	39.28	39.28	0.00	0.00
R1/293	**W11/293**	39.09	39.09	0.00	0.00
R1/293	**W12/293**	37.49	37.49	0.00	0.00
R1/293	**W13/293**	35.42	35.30	0.12	0.34
R1/293	**W14/293**	34.17	33.98	0.19	0.56
R1/293	**W15/293**	35.81	35.66	0.15	0.42
R1/293	**W16/293**	37.98	37.97	0.01	0.03
VESTRY, 1-5 FLITCROFT STREET					
R1/280	**W1/280**	10.84	10.82	0.02	0.18
R1/280	**W2/280**	13.19	12.77	0.42	3.18
R1/280	**W3/280**	24.31	24.31	0.00	0.00
R1/280	**W4/280**	22.13	22.13	0.00	0.00
R1/300	**W1/300**	13.92	12.93	0.99	7.11
R1/300	**W2/300**	2.70	2.64	0.06	2.22
R1/301	**W1/301**	16.66	15.77	0.89	5.34
R1/301	**W2/301**	4.13	4.07	0.06	1.45
R1/301	**W3/301**	4.07	4.01	0.06	1.47
R1/302	**W1/302**	26.39	25.85	0.54	2.05
R1/302	**W2/302**	33.22	33.22	0.00	0.00
1-3 DENMARK STREET					
R1/310	**W1/310**	16.75	15.53	1.22	7.28
R1/310	**W2/310**	20.31	19.02	1.29	6.35

		Vertical Sky Component			
Room	Window	Existing	Proposed	Loss	%
R1/310	W3/310	7.64	6.22	1.42	18.59
R1/310	W4/310	11.74	11.39	0.35	2.98
R1/310	W5/310	12.06	11.90	0.16	1.33
R1/310	W6/310	6.72	6.72	0.00	0.00
R1/311	W1/311	23.42	22.40	1.02	4.36
R1/311	W2/311	23.87	22.80	1.07	4.48
R1/311	W3/311	24.19	23.07	1.12	4.63
R2/311	W4/311	24.50	23.28	1.22	4.98
R2/311	W5/311	24.50	23.24	1.26	5.14
R2/311	W6/311	24.54	23.22	1.32	5.38
R2/311	W7/311	20.23	18.73	1.50	7.41
R2/311	W8/311	18.60	18.08	0.52	2.80
R2/311	W9/311	18.39	17.95	0.44	2.39
R2/311	W10/311	18.31	17.95	0.36	1.97
R3/311	W11/311	18.70	18.44	0.26	1.39
R3/311	W12/311	18.73	18.53	0.20	1.07
R3/311	W13/311	18.49	18.33	0.16	0.87
R4/311	W14/311	18.18	18.08	0.10	0.55
R1/312	W1/312	26.11	25.21	0.90	3.45
R1/312	W2/312	26.35	25.40	0.95	3.61
R1/312	W3/312	26.51	25.52	0.99	3.73
R2/312	W4/312	26.62	25.54	1.08	4.06
R2/312	W5/312	26.59	25.47	1.12	4.21
R2/312	W6/312	26.59	25.41	1.18	4.44
R2/312	W7/312	23.61	22.21	1.40	5.93
R2/312	W8/312	23.75	23.22	0.53	2.23
R2/312	W9/312	23.55	23.08	0.47	2.00

Vertical Sky Component					
Room	**Window**	**Existing**	**Proposed**	**Loss**	**%**
R2/312	**W10/312**	23.40	23.02	0.38	1.62
R3/312	**W11/312**	23.78	23.51	0.27	1.14
R3/312	**W12/312**	23.83	23.60	0.23	0.97
R3/312	**W13/312**	23.57	23.36	0.21	0.89
R4/312	**W14/312**	23.32	23.16	0.16	0.69
R1/313	**W1/313**	27.89	27.11	0.78	2.80
R1/313	**W2/313**	28.08	27.26	0.82	2.92
R1/313	**W3/313**	28.21	27.36	0.85	3.01
R2/313	**W4/313**	28.36	27.43	0.93	3.28
R2/313	**W5/313**	28.38	27.41	0.97	3.42
R2/313	**W6/313**	28.41	27.40	1.01	3.56
R2/313	**W7/313**	26.63	25.43	1.20	4.51
R2/313	**W8/313**	28.53	28.06	0.47	1.65
R2/313	**W9/313**	28.57	28.15	0.42	1.47
R2/313	**W10/313**	28.47	28.11	0.36	1.26
R3/313	**W11/313**	28.69	28.40	0.29	1.01
R3/313	**W12/313**	28.83	28.58	0.25	0.87
R3/313	**W13/313**	28.71	28.47	0.24	0.84
R4/313	**W14/313**	28.73	28.54	0.19	0.66
R1/314	**W1/314**	29.72	29.04	0.68	2.29
R1/314	**W2/314**	29.91	29.20	0.71	2.37
R1/314	**W3/314**	29.96	29.22	0.74	2.47
R2/314	**W4/314**	30.09	29.36	0.73	2.43
R2/314	**W5/314**	30.20	29.45	0.75	2.48
R2/314	**W6/314**	30.21	29.43	0.78	2.58

		Vertical Sky Component			
Room	Window	Existing	Proposed	Loss	%
R2/314	**W7/314**	29.35	28.45	0.90	3.07
R2/314	**W8/314**	31.86	31.43	0.43	1.35
R2/314	**W9/314**	32.10	31.73	0.37	1.15
R2/314	**W10/314**	32.20	31.88	0.32	0.99
R3/314	**W11/314**	32.45	32.18	0.27	0.83
R3/314	**W12/314**	32.55	32.30	0.25	0.77
R3/314	**W13/314**	32.66	32.43	0.23	0.70
R4/314	**W14/314**	32.80	32.60	0.20	0.61
28 DENMARK STREET					
R1/440	**W1/440**	24.02	24.02	0.00	0.00
R1/440	**W2/440**	24.25	24.25	0.00	0.00
R1/440	**W3/440**	24.54	24.54	0.00	0.00
R1/440	**W4/440**	23.53	23.18	0.35	1.49
R1/440	**W5/440**	23.17	22.91	0.26	1.12
R1/440	**W6/440**	22.38	22.37	0.01	0.04
R1/440	**W7/440**	2.83	2.83	0.00	0.00
R1/440	**W8/440**	12.07	8.16	3.91	32.39
R1/440	**W9/440**	12.43	8.59	3.84	30.89
R1/440	**W10/440**	12.40	8.60	3.80	30.65
R1/441	**W1/441**	27.29	27.29	0.00	0.00
R1/441	**W2/441**	28.26	28.26	0.00	0.00
R1/441	**W3/441**	27.79	27.79	0.00	0.00
R1/441	**W4/441**	28.71	28.71	0.00	0.00
R1/441	**W5/441**	28.07	28.07	0.00	0.00
R1/441	**W6/441**	28.96	28.96	0.00	0.00
R1/441	**W7/441**	28.21	28.20	0.01	0.04
R1/441	**W8/441**	29.05	29.04	0.01	0.03
R1/441	**W9/441**	28.01	27.95	0.06	0.21

		Vertical Sky Component			
Room	Window	Existing	Proposed	Loss	%
R1/441	W10/441	28.77	28.71	0.06	0.21
R1/441	W11/441	26.88	26.37	0.51	1.90
R1/441	W12/441	27.49	26.98	0.51	1.86
R1/441	W13/441	20.71	16.80	3.91	18.88
R1/441	W14/441	15.51	10.19	5.32	34.30
R1/441	W15/441	14.74	9.82	4.92	33.38
R1/441	W17/441	15.39	10.60	4.79	31.12
R1/442	W1/442	30.13	30.13	0.00	0.00
R1/442	W2/442	31.06	31.06	0.00	0.00
R1/442	W3/442	30.45	30.45	0.00	0.00
R1/442	W4/442	31.30	31.30	0.00	0.00
R1/442	W5/442	30.60	30.60	0.00	0.00
R1/442	W6/442	31.40	31.40	0.00	0.00
R1/442	W7/442	30.61	30.60	0.01	0.03
R1/442	W8/442	31.35	31.34	0.01	0.03
R1/442	W9/442	30.19	30.14	0.05	0.17
R1/442	W10/442	30.84	30.79	0.05	0.16
R1/442	W11/442	28.67	28.15	0.52	1.81
R1/442	W12/442	29.21	28.67	0.54	1.85
R1/442	W13/442	22.53	18.08	4.45	19.75
R1/442	W14/442	17.58	11.32	6.26	35.61
R1/442	W16/442	16.77	11.03	5.74	34.23
R1/442	W18/442	17.35	11.85	5.50	31.70
R1/443	W1/443	32.94	32.94	0.00	0.00
R1/443	W2/443	30.15	29.60	0.55	1.82
R1/443	W3/443	30.58	30.04	0.54	1.77
R1/443	W4/443	24.00	19.32	4.68	19.50
R1/443	W5/443	19.26	12.56	6.70	34.79
R1/443	W6/443	18.65	12.51	6.14	32.92
R1/443	W7/443	19.16	13.28	5.88	30.69

		Vertical Sky Component			
Room	Window	Existing	Proposed	Loss	%
R1/444	**W1/444**	34.59	34.59	0.00	0.00
R1/444	**W2/444**	31.23	30.83	0.40	1.28
R1/444	**W3/444**	32.89	32.89	0.00	0.00
R1/444	**W4/444**	31.64	31.08	0.56	1.77
R1/444	**W5/444**	25.40	20.74	4.66	18.35
R1/444	**W6/444**	21.25	14.71	6.54	30.78
R1/444	**W7/444**	20.98	16.99	3.99	19.02
R1/444	**W8/444**	21.38	15.42	5.96	27.88
R1/445	**W1/445**	29.11	28.63	0.48	1.65
59 ST. GILES HIGH STREET					
R1/430	**W1/430**	13.08	9.63	3.45	26.38
R1/430	**W2/430**	3.57	1.77	1.80	50.42
R1/431	**W1/431**	14.29	10.37	3.92	27.43
R1/431	**W2/431**	14.27	10.71	3.56	24.95
R1/432	**W1/432**	15.48	11.36	4.12	26.61
R1/432	**W2/432**	15.60	11.76	3.84	24.62
R1/433	**W1/433**	16.87	12.45	4.42	26.20
R1/433	**W2/433**	17.01	12.94	4.07	23.93

Room/ Floor	Room Use	Whole Room	Prev sq ft	New sq ft	Loss sq ft	%Loss
1-53 MATILDA APARTMENTS, 4 EARNSHAW STREET						
R1/601	LIVINGROOM	263.1	259.0	259.0	0.0	0.0
R2/601	LIVINGROOM	225.8	219.4	218.9	0.5	0.2
R3/601	LKD	222.7	220.1	219.8	0.2	0.1
R4/601	BEDROOM	162.8	157.6	93.1	64.5	40.9
R5/601	BEDROOM	182.9	178.8	109.1	69.7	39.0
R6/601	BEDROOM	139.6	133.8	112.1	21.7	16.2
R7/601	LKD	357.7	328.7	323.5	5.2	1.6
R8/601	BEDROOM	159.4	159.4	159.4	0.0	0.0
R9/601	BEDROOM	129.7	126.1	126.1	0.0	0.0
R10/601	LKD	298.4	291.6	291.6	0.0	0.0
R11/601	BEDROOM	123.8	121.8	121.4	0.4	0.3
R1/602	BEDROOM	80.1	78.2	78.2	0.0	0.0
R2/602	BEDROOM	131.1	129.0	129.0	0.0	0.0
R3/602	BEDROOM	94.6	93.7	93.7	0.0	0.0
R4/602	BEDROOM	127.3	124.7	113.6	11.1	8.9
R5/602	BEDROOM	136.0	105.6	42.4	63.2	59.8
R6/602	BEDROOM	109.1	100.7	44.8	55.9	55.5
R7/602	BEDROOM	140.2	137.2	45.0	92.1	67.1
R8/602	BEDROOM	121.3	117.5	63.7	53.8	45.8
R9/602	BEDROOM	90.8	87.1	81.2	5.9	6.8
R10/602	LIVINGROOM	161.7	161.6	160.7	0.9	0.6
R11/602	BEDROOM	159.4	159.4	159.4	0.0	0.0
R12/602	BEDROOM	129.7	126.1	126.1	0.0	0.0
R13/602	LIVINGROOM	298.4	292.2	292.2	0.0	0.0
R14/602	BEDROOM	123.8	121.8	121.4	0.4	0.3
R1/603	BEDROOM	85.0	84.2	84.2	0.0	0.0
R2/603	BEDROOM	132.1	131.4	131.4	0.0	0.0
R3/603	BEDROOM	114.2	112.8	112.8	0.0	0.0
R4/603	BEDROOM	135.9	115.8	98.4	17.4	15.0
R5/603	LKD	243.1	232.6	157.1	75.5	32.5
R6/603	BEDROOM	140.2	137.7	49.9	87.8	63.8
R7/603	BEDROOM	121.3	118.8	68.6	50.3	42.3

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Room/ Floor	Room Use	Whole Room	Prev sq ft	New sq ft	Loss sq ft	%Loss
R8/603	BEDROOM	90.8	88.2	82.3	5.9	6.7
R9/603	LIVINGROOM	161.7	161.7	160.8	0.9	0.6
R10/603	BEDROOM	143.5	143.4	143.4	0.0	0.0
R11/603	BEDROOM	169.9	167.4	167.4	0.0	0.0
R12/603	LKD	305.4	303.6	303.6	0.0	0.0
R1/604	BEDROOM	85.0	84.2	84.2	0.0	0.0
R2/604	BEDROOM	132.1	131.4	131.4	0.0	0.0
R3/604	BEDROOM	114.2	112.8	112.8	0.0	0.0
R4/604	BEDROOM	135.9	117.9	100.5	17.3	14.7
R5/604	LKD	243.1	233.3	164.6	68.7	29.4
R6/604	BEDROOM	140.2	137.7	55.3	82.4	59.8
R7/604	BEDROOM	121.3	119.5	74.0	45.5	38.1
R8/604	BEDROOM	90.8	88.2	82.5	5.7	6.5
R9/604	LKD	161.7	161.7	160.8	0.8	0.5
R10/604	BEDROOM	143.5	143.4	143.4	0.0	0.0
R11/604	BEDROOM	169.9	167.4	167.4	0.0	0.0
R12/604	LKD	305.4	303.6	303.6	0.0	0.0
R13/604	BEDROOM	138.1	135.5	135.0	0.5	0.4
R1/605	BEDROOM	142.0	141.0	141.0	0.0	0.0
R2/605	BEDROOM	146.2	143.9	143.9	0.1	0.1
R3/605	BEDROOM	172.5	139.3	107.8	31.4	22.5
R4/605	BEDROOM	137.5	119.9	75.9	44.0	36.7
R5/605	LKD	296.4	276.3	180.4	95.9	34.7
R6/605	BEDROOM	130.3	126.6	62.2	64.4	50.9
R7/605	BEDROOM	148.0	146.6	110.9	35.7	24.4
R8/605	LKD	344.9	336.7	328.0	8.6	2.6
R9/605	BEDROOM	114.2	114.2	114.2	0.0	0.0
R10/605	BEDROOM	129.7	127.2	127.2	0.0	0.0
R11/605	LKD	297.2	293.7	293.7	0.0	0.0
R12/605	BEDROOM	123.8	122.2	122.2	0.0	0.0
R1/606	BEDROOM	142.0	141.0	141.0	0.0	0.0
R2/606	BEDROOM	146.2	144.3	144.3	0.0	0.0
R3/606	BEDROOM	172.5	140.6	108.8	31.8	22.6
R4/606	BEDROOM	137.5	124.0	97.9	26.2	21.1

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Room/ Floor	Room Use	Whole Room	Prev sq ft	New sq ft	Loss sq ft	%Loss
R5/606	LKD	296.4	276.3	201.1	75.2	27.2
R6/606	BEDROOM	130.3	126.6	75.8	50.8	40.1
R7/606	BEDROOM	148.0	146.6	116.1	30.5	20.8
R8/606	LKD	344.9	336.7	328.2	8.4	2.5
R9/606	BEDROOM	114.2	114.2	114.2	0.0	0.0
R10/606	BEDROOM	129.7	127.2	127.2	0.0	0.0
R11/606	LKD	297.2	293.7	293.7	0.0	0.0
R12/606	BEDROOM	123.8	122.2	122.2	0.0	0.0
R1/607	BEDROOM	142.0	141.0	141.0	0.0	0.0
R2/607	BEDROOM	146.2	144.3	144.3	0.0	0.0
R3/607	BEDROOM	172.5	148.2	132.2	16.1	10.9
R4/607	BEDROOM	137.5	135.8	135.8	0.0	0.0
R5/607	LKD	296.4	279.2	236.2	43.0	15.4
R6/607	BEDROOM	130.3	126.6	97.9	28.7	22.7
R7/607	BEDROOM	148.0	146.6	128.8	17.9	12.2
R8/607	LKD	344.9	336.7	328.9	7.8	2.3
R9/607	BEDROOM	114.2	114.2	114.2	0.0	0.0
R10/607	BEDROOM	129.7	127.3	127.3	0.0	0.0
R11/607	LKD	297.2	293.7	293.7	0.0	0.0
R12/607	BEDROOM	123.8	122.2	122.2	0.0	0.0
R1/608	BEDROOM	142.0	141.0	141.0	0.0	0.0
R2/608	BEDROOM	146.2	144.3	144.3	0.0	0.0
R3/608	BEDROOM	172.5	167.8	167.8	0.0	0.0
R4/608	BEDROOM	137.5	135.8	135.8	0.0	0.0
R5/608	LKD	296.4	286.8	273.9	12.8	4.5
R6/608	BEDROOM	130.3	126.6	124.6	2.0	1.6
R7/608	BEDROOM	148.0	146.6	141.3	5.3	3.6
R8/608	LKD	344.9	336.7	331.8	4.9	1.5
R9/608	BEDROOM	114.2	114.2	114.2	0.0	0.0
R10/608	BEDROOM	129.7	127.3	127.3	0.0	0.0
R11/608	LKD	297.2	293.7	293.7	0.0	0.0
R12/608	BEDROOM	123.8	122.2	122.2	0.0	0.0
R1/609	BEDROOM	142.0	141.2	141.2	0.0	0.0
R2/609	BEDROOM	146.2	144.3	144.3	0.0	0.0

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Room/ Floor	Room Use	Whole Room	Prev sq ft	New sq ft	Loss sq ft	%Loss
R3/609	BEDROOM	172.5	167.8	167.8	0.0	0.0
R4/609	BEDROOM	137.5	135.8	135.8	0.0	0.0
R5/609	LKD	296.4	286.8	286.8	0.0	0.0
R6/609	BEDROOM	130.3	126.6	126.6	0.0	0.0
R7/609	BEDROOM	148.0	146.6	146.6	0.0	0.0
R8/609	LKD	344.9	336.7	336.7	0.0	0.0
R9/609	BEDROOM	114.2	114.2	114.2	0.0	0.0
R10/609	BEDROOM	129.7	127.3	127.3	0.0	0.0
R11/609	LKD	297.2	293.7	293.7	0.0	0.0
R12/609	BEDROOM	123.8	122.2	122.2	0.0	0.0
R1/610	BEDROOM	85.2	84.8	84.8	0.0	0.0
R2/610	BEDROOM	132.1	130.4	130.4	0.0	0.0
R3/610	BEDROOM	114.1	113.4	113.4	0.0	0.0
R4/610	BEDROOM	136.0	135.5	135.5	0.0	0.0
R5/610	LKD	314.0	311.1	311.1	0.0	0.0
R6/610	BEDROOM	123.4	120.6	120.6	0.0	0.0
R7/610	LKD	313.6	312.6	312.6	0.0	0.0
R8/610	LKD	344.3	338.2	338.2	0.0	0.0
R9/610	BEDROOM	114.2	114.2	114.2	0.0	0.0
R10/610	BEDROOM	129.7	127.3	127.3	0.0	0.0
R11/610	LKD	297.2	295.5	295.5	0.0	0.0
R12/610	BEDROOM	123.8	123.1	123.1	0.0	0.0
R1/611		169.2	168.2	168.2	0.0	0.0
R2/611		178.3	175.8	175.8	0.0	0.0
R3/611		268.8	267.3	267.3	0.0	0.0
R4/611		220.4	218.0	218.0	0.0	0.0
R5/611		117.4	116.9	116.9	0.0	0.0
R6/611		140.6	139.8	139.8	0.0	0.0
R7/611		325.2	324.9	324.9	0.0	0.0
R1/612		169.2	168.3	168.3	0.0	0.0
R2/612		178.3	175.8	175.8	0.0	0.0
R3/612		268.8	267.4	267.4	0.0	0.0
R4/612		220.4	218.0	218.0	0.0	0.0
R5/612		117.4	116.9	116.9	0.0	0.0

Room/ Floor	Room Use	Whole Room	Prev sq ft	New sq ft	Loss sq ft	%Loss
R6/612		140.6	139.8	139.8	0.0	0.0
R7/612		325.2	322.8	322.8	0.0	0.0
R1/613		169.2	168.5	168.5	0.0	0.0
R2/613		178.3	176.3	176.3	0.0	0.0
R3/613		268.8	267.6	267.6	0.0	0.0
R4/613		220.4	218.0	218.0	0.0	0.0
R5/613		117.4	116.9	116.9	0.0	0.0
R6/613		140.6	139.8	139.8	0.0	0.0
R7/613		325.2	322.8	322.8	0.0	0.0
R1/614		169.2	168.6	168.6	0.0	0.0
R2/614		178.3	177.6	177.6	0.0	0.0
R3/614		268.8	267.6	267.6	0.0	0.0
R4/614		220.4	218.0	218.0	0.0	0.0
R5/614		117.4	116.9	116.9	0.0	0.0
R6/614		140.6	140.3	140.3	0.0	0.0
R7/614		218.3	216.8	216.8	0.0	0.0
R5/6111		258.7	258.6	258.6	0.0	0.0
R6/6111		247.6	247.1	247.1	0.0	0.0
R7/6111		129.3	129.2	129.2	0.0	0.0
VESTRY, 1-5 FLITCROFT STREET						
R1/280		487.8	413.8	413.6	0.2	0.0
R1/300		281.2	184.6	184.6	0.0	0.0
R1/301		281.2	214.6	214.6	0.0	0.0
R1/302		214.0	212.9	212.9	0.0	0.0
1-3 DENMARK STREET						
R1/310		1280.8	1202.0	1133.3	68.8	5.7
R1/311		353.1	345.7	326.6	19.1	5.5
R2/311		486.0	475.3	442.8	32.5	6.8
R3/311		331.7	205.6	205.6	0.0	0.0

Room/ Floor	Room Use	Whole Room	Prev sq ft	New sq ft	Loss sq ft	%Loss
R4/311		103.4	55.5	55.5	0.0	0.0
R1/312		353.1	348.0	334.8	13.1	3.8
R2/312		486.0	485.5	485.5	0.0	0.0
R3/312		331.7	289.4	289.4	0.0	0.0
R4/312		103.4	90.7	90.7	0.0	0.0
R1/313		353.1	347.8	335.1	12.7	3.7
R2/313		486.0	486.0	486.0	0.0	0.0
R3/313		331.7	330.8	330.8	0.0	0.0
R4/313		103.4	100.7	100.7	0.0	0.0
R1/314		353.1	350.8	346.9	3.8	1.1
R2/314		447.2	447.2	447.2	0.0	0.0
R3/314		331.7	329.6	329.6	0.0	0.0
R4/314		98.8	95.8	95.8	0.0	0.0
28 DENMARK STREET						
R1/440		570.5	566.8	566.4	0.3	0.1
R1/441		637.0	635.0	632.7	2.3	0.4
R1/442		637.0	633.8	631.4	2.4	0.4
R1/443		637.0	635.6	634.6	1.1	0.2
R1/444		637.0	547.6	542.6	5.1	0.9
R1/445		46.0	43.8	43.7	0.1	0.2
59 ST. GILES HIGH STREET						
R1/430		283.8	128.9	128.9	0.0	0.0
R1/431		202.4	100.8	92.3	8.5	8.4
R1/432		202.3	97.7	87.1	10.6	10.8
R1/433		202.4	96.8	85.3	11.5	11.9

Room/ Floor	Room Use	Whole Room	Prev sq ft	New sq ft	Loss sq ft	%Loss
1-53 MATILDA APARTMENTS, 4 EARNSHAW STREET						
R1/601	LIVINGROOM	263.1	259.0	259.0	0.0	0.0
R2/601	LIVINGROOM	225.8	219.4	218.9	0.5	0.2
R3/601	LKD	222.7	220.1	219.5	0.6	0.3
R4/601	BEDROOM	162.8	157.6	90.1	67.5	42.8
R5/601	BEDROOM	182.9	178.8	109.9	68.9	38.5
R6/601	BEDROOM	139.6	133.8	112.1	21.7	16.2
R7/601	LKD	357.7	328.7	323.7	5.0	1.5
R8/601	BEDROOM	159.4	159.4	159.4	0.0	0.0
R9/601	BEDROOM	129.7	126.1	126.1	0.0	0.0
R10/601	LKD	298.4	291.6	291.6	0.0	0.0
R11/601	BEDROOM	123.8	121.8	121.4	0.4	0.3
R1/602	BEDROOM	80.1	78.2	78.2	0.0	0.0
R2/602	BEDROOM	131.1	129.0	129.0	0.0	0.0
R3/602	BEDROOM	94.6	93.7	93.7	0.0	0.0
R4/602	BEDROOM	127.3	124.7	113.6	11.1	8.9
R5/602	BEDROOM	136.0	105.6	42.1	63.5	60.1
R6/602	BEDROOM	109.1	100.7	43.8	56.8	56.4
R7/602	BEDROOM	140.2	137.2	44.1	93.0	67.8
R8/602	BEDROOM	121.3	117.5	64.3	53.1	45.2
R9/602	BEDROOM	90.8	87.1	81.2	5.9	6.8
R10/602	LIVINGROOM	161.7	161.6	160.7	0.9	0.6
R11/602	BEDROOM	159.4	159.4	159.4	0.0	0.0
R12/602	BEDROOM	129.7	126.1	126.1	0.0	0.0
R13/602	LIVINGROOM	298.4	292.2	292.2	0.0	0.0
R14/602	BEDROOM	123.8	121.8	121.4	0.4	0.3
R1/603	BEDROOM	85.0	84.2	84.2	0.0	0.0
R2/603	BEDROOM	132.1	131.4	131.4	0.0	0.0
R3/603	BEDROOM	114.2	112.8	112.8	0.0	0.0
R4/603	BEDROOM	135.9	115.8	98.4	17.4	15.0
R5/603	LKD	243.1	232.6	152.2	80.4	34.6
R6/603	BEDROOM	140.2	137.7	49.3	88.4	64.2
R7/603	BEDROOM	121.3	118.8	69.2	49.6	41.8

Centrepoint
Proposed Scheme 17/03/13 IR13 - B
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Room/ Floor	Room Use	Whole Room	Prev sq ft	New sq ft	Loss sq ft	%Loss
R8/603	BEDROOM	90.8	88.2	82.3	5.9	6.7
R9/603	LIVINGROOM	161.7	161.7	160.8	0.9	0.6
R10/603	BEDROOM	143.5	143.4	143.4	0.0	0.0
R11/603	BEDROOM	169.9	167.4	167.4	0.0	0.0
R12/603	LKD	305.4	303.6	303.6	0.0	0.0
R1/604	BEDROOM	85.0	84.2	84.2	0.0	0.0
R2/604	BEDROOM	132.1	131.4	131.4	0.0	0.0
R3/604	BEDROOM	114.2	112.8	112.8	0.0	0.0
R4/604	BEDROOM	135.9	117.9	100.5	17.3	14.7
R5/604	LKD	243.1	233.3	159.8	73.5	31.5
R6/604	BEDROOM	140.2	137.7	54.9	82.8	60.1
R7/604	BEDROOM	121.3	119.5	74.5	45.0	37.7
R8/604	BEDROOM	90.8	88.2	82.5	5.7	6.5
R9/604	LKD	161.7	161.7	160.9	0.8	0.5
R10/604	BEDROOM	143.5	143.4	143.4	0.0	0.0
R11/604	BEDROOM	169.9	167.4	167.4	0.0	0.0
R12/604	LKD	305.4	303.6	303.6	0.0	0.0
R13/604	BEDROOM	138.1	135.5	135.0	0.5	0.4
R1/605	BEDROOM	142.0	141.0	141.0	0.0	0.0
R2/605	BEDROOM	146.2	143.9	143.9	0.1	0.1
R3/605	BEDROOM	172.5	139.3	107.8	31.4	22.5
R4/605	BEDROOM	137.5	119.9	75.9	44.0	36.7
R5/605	LKD	296.4	276.3	179.9	96.4	34.9
R6/605	BEDROOM	130.3	126.6	62.5	64.1	50.6
R7/605	BEDROOM	148.0	146.6	110.9	35.7	24.4
R8/605	LKD	344.9	336.7	328.3	8.4	2.5
R9/605	BEDROOM	114.2	114.2	114.2	0.0	0.0
R10/605	BEDROOM	129.7	127.2	127.2	0.0	0.0
R11/605	LKD	297.2	293.7	293.7	0.0	0.0
R12/605	BEDROOM	123.8	122.2	122.2	0.0	0.0
R1/606	BEDROOM	142.0	141.0	141.0	0.0	0.0
R2/606	BEDROOM	146.2	144.3	144.3	0.0	0.0
R3/606	BEDROOM	172.5	140.6	108.8	31.8	22.6
R4/606	BEDROOM	137.5	124.0	97.9	26.2	21.1

Centrepoint
Proposed Scheme 17/03/13 IR13 - B
DAYLIGHT DISTRIBUTION ANALYSIS

Room/ Floor	Room Use	Whole Room	Prev sq ft	New sq ft	Loss sq ft	%Loss
R5/606	LKD	296.4	276.3	201.4	74.9	27.1
R6/606	BEDROOM	130.3	126.6	76.3	50.3	39.7
R7/606	BEDROOM	148.0	146.6	116.1	30.5	20.8
R8/606	LKD	344.9	336.7	328.5	8.1	2.4
R9/606	BEDROOM	114.2	114.2	114.2	0.0	0.0
R10/606	BEDROOM	129.7	127.2	127.2	0.0	0.0
R11/606	LKD	297.2	293.7	293.7	0.0	0.0
R12/606	BEDROOM	123.8	122.2	122.2	0.0	0.0
R1/607	BEDROOM	142.0	141.0	141.0	0.0	0.0
R2/607	BEDROOM	146.2	144.3	144.3	0.0	0.0
R3/607	BEDROOM	172.5	148.2	132.2	16.1	10.9
R4/607	BEDROOM	137.5	135.8	135.8	0.0	0.0
R5/607	LKD	296.4	279.2	236.2	43.0	15.4
R6/607	BEDROOM	130.3	126.6	98.2	28.4	22.4
R7/607	BEDROOM	148.0	146.6	128.8	17.9	12.2
R8/607	LKD	344.9	336.7	329.2	7.5	2.2
R9/607	BEDROOM	114.2	114.2	114.2	0.0	0.0
R10/607	BEDROOM	129.7	127.3	127.3	0.0	0.0
R11/607	LKD	297.2	293.7	293.7	0.0	0.0
R12/607	BEDROOM	123.8	122.2	122.2	0.0	0.0
R1/608	BEDROOM	142.0	141.0	141.0	0.0	0.0
R2/608	BEDROOM	146.2	144.3	144.3	0.0	0.0
R3/608	BEDROOM	172.5	167.8	167.8	0.0	0.0
R4/608	BEDROOM	137.5	135.8	135.8	0.0	0.0
R5/608	LKD	296.4	286.8	273.9	12.8	4.5
R6/608	BEDROOM	130.3	126.6	123.8	2.8	2.2
R7/608	BEDROOM	148.0	146.6	140.5	6.1	4.2
R8/608	LKD	344.9	336.7	331.9	4.7	1.4
R9/608	BEDROOM	114.2	114.2	114.2	0.0	0.0
R10/608	BEDROOM	129.7	127.3	127.3	0.0	0.0
R11/608	LKD	297.2	293.7	293.7	0.0	0.0
R12/608	BEDROOM	123.8	122.2	122.2	0.0	0.0
R1/609	BEDROOM	142.0	141.2	141.2	0.0	0.0
R2/609	BEDROOM	146.2	144.3	144.3	0.0	0.0

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Room/ Floor	Room Use	Whole Room	Prev sq ft	New sq ft	Loss sq ft	%Loss
R3/609	BEDROOM	172.5	167.8	167.8	0.0	0.0
R4/609	BEDROOM	137.5	135.8	135.8	0.0	0.0
R5/609	LKD	296.4	286.8	286.8	0.0	0.0
R6/609	BEDROOM	130.3	126.6	126.6	0.0	0.0
R7/609	BEDROOM	148.0	146.6	146.6	0.0	0.0
R8/609	LKD	344.9	336.7	336.7	0.0	0.0
R9/609	BEDROOM	114.2	114.2	114.2	0.0	0.0
R10/609	BEDROOM	129.7	127.3	127.3	0.0	0.0
R11/609	LKD	297.2	293.7	293.7	0.0	0.0
R12/609	BEDROOM	123.8	122.2	122.2	0.0	0.0
R1/610	BEDROOM	85.2	84.8	84.8	0.0	0.0
R2/610	BEDROOM	132.1	130.4	130.4	0.0	0.0
R3/610	BEDROOM	114.1	113.4	113.4	0.0	0.0
R4/610	BEDROOM	136.0	135.5	135.5	0.0	0.0
R5/610	LKD	314.0	311.1	311.1	0.0	0.0
R6/610	BEDROOM	123.4	120.6	120.6	0.0	0.0
R7/610	LKD	313.6	312.6	312.6	0.0	0.0
R8/610	LKD	344.3	338.2	338.2	0.0	0.0
R9/610	BEDROOM	114.2	114.2	114.2	0.0	0.0
R10/610	BEDROOM	129.7	127.3	127.3	0.0	0.0
R11/610	LKD	297.2	295.5	295.5	0.0	0.0
R12/610	BEDROOM	123.8	123.1	123.1	0.0	0.0
R1/611		169.2	168.2	168.2	0.0	0.0
R2/611		178.3	175.8	175.8	0.0	0.0
R3/611		268.8	267.3	267.3	0.0	0.0
R4/611		220.4	218.0	218.0	0.0	0.0
R5/611		117.4	116.9	116.9	0.0	0.0
R6/611		140.6	139.8	139.8	0.0	0.0
R7/611		325.2	324.9	324.9	0.0	0.0
R1/612		169.2	168.3	168.3	0.0	0.0
R2/612		178.3	175.8	175.8	0.0	0.0
R3/612		268.8	267.4	267.4	0.0	0.0
R4/612		220.4	218.0	218.0	0.0	0.0
R5/612		117.4	116.9	116.9	0.0	0.0

Room/ Floor	Room Use	Whole Room	Prev sq ft	New sq ft	Loss sq ft	%Loss
R6/612		140.6	139.8	139.8	0.0	0.0
R7/612		325.2	322.8	322.8	0.0	0.0
R1/613		169.2	168.5	168.5	0.0	0.0
R2/613		178.3	176.3	176.3	0.0	0.0
R3/613		268.8	267.6	267.6	0.0	0.0
R4/613		220.4	218.0	218.0	0.0	0.0
R5/613		117.4	116.9	116.9	0.0	0.0
R6/613		140.6	139.8	139.8	0.0	0.0
R7/613		325.2	322.8	322.8	0.0	0.0
R1/614		169.2	168.6	168.6	0.0	0.0
R2/614		178.3	177.6	177.6	0.0	0.0
R3/614		268.8	267.6	267.6	0.0	0.0
R4/614		220.4	218.0	218.0	0.0	0.0
R5/614		117.4	116.9	116.9	0.0	0.0
R6/614		140.6	140.3	140.3	0.0	0.0
R7/614		218.3	216.8	216.8	0.0	0.0
R5/6111		258.7	258.6	258.6	0.0	0.0
R6/6111		247.6	247.1	247.1	0.0	0.0
R7/6111		129.3	129.2	129.2	0.0	0.0
VESTRY, 1-5 FLITCROFT STREET						
R1/280		487.8	413.8	413.6	0.2	0.0
R1/300		281.2	184.6	184.6	0.0	0.0
R1/301		281.2	214.6	214.6	0.0	0.0
R1/302		214.0	212.9	212.9	0.0	0.0
1-3 DENMARK STREET						
R1/310		1280.8	1202.0	1133.3	68.8	5.7
R1/311		353.1	345.7	326.6	19.1	5.5
R2/311		486.0	475.3	442.8	32.5	6.8
R3/311		331.7	205.6	205.6	0.0	0.0

Room/ Floor	Room Use	Whole Room	Prev sq ft	New sq ft	Loss sq ft	%Loss
R4/311		103.4	55.5	55.5	0.0	0.0
R1/312		353.1	348.0	334.8	13.1	3.8
R2/312		486.0	485.5	485.5	0.0	0.0
R3/312		331.7	289.4	289.4	0.0	0.0
R4/312		103.4	90.7	90.7	0.0	0.0
R1/313		353.1	347.8	335.1	12.7	3.7
R2/313		486.0	486.0	486.0	0.0	0.0
R3/313		331.7	330.8	330.8	0.0	0.0
R4/313		103.4	100.7	100.7	0.0	0.0
R1/314		353.1	350.8	346.9	3.8	1.1
R2/314		447.2	447.2	447.2	0.0	0.0
R3/314		331.7	329.6	329.6	0.0	0.0
R4/314		98.8	95.8	95.8	0.0	0.0
28 DENMARK STREET						
R1/440		570.5	566.8	566.4	0.3	0.1
R1/441		637.0	635.0	632.7	2.3	0.4
R1/442		637.0	633.8	631.4	2.4	0.4
R1/443		637.0	635.6	634.6	1.1	0.2
R1/444		637.0	547.6	542.6	5.1	0.9
R1/445		46.0	43.8	43.7	0.1	0.2
59 ST. GILES HIGH STREET						
R1/430		283.8	128.9	128.9	0.0	0.0
R1/431		202.4	100.8	92.3	8.5	8.4
R1/432		202.3	97.7	87.1	10.6	10.8
R1/433		202.4	96.8	85.3	11.5	11.9

			Window						Room					
			Existing		Proposed				Existing		Proposed			
Room	Window	Room Use	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss
1-53 MATILDA APARTMENTS, 4 EARNSHAW STREET														
R2/601	**W5/601**	LIVINGROOM	0	0	0	0	-	-						
R2/601	**W6/601**	LIVINGROOM	0	0	0	0	-	-						
R2/601	**W7/601**	LIVINGROOM	0	0	0	0	-	-						
R2/601	**W8/601**	LIVINGROOM	0	0	0	0	-	-	0	0	0	0	-	-
R3/601	**W9/601**	LKD	0	0	0	0	-	-						
R3/601	**W10/601**	LKD	9	25	6	15	33.3	40.0						
R3/601	**W11/601**	LKD	10	26	7	16	30.0	38.5						
R3/601	**W12/601**	LKD	10	27	8	17	20.0	37.0						
R3/601	**W13/601**	LKD	10	30	8	17	20.0	43.3	10	30	8	17	20.0	43.3
R4/601	**W14/601**	BEDROOM	9	30	6	15	33.3	50.0						
R4/601	**W15/601**	BEDROOM	10	32	7	16	30.0	50.0						
R4/601	**W16/601**	BEDROOM	11	33	8	17	27.3	48.5	11	33	8	17	27.3	48.5
R5/601	**W17/601**	BEDROOM	11	35	10	20	9.1	42.9						
R5/601	**W18/601**	BEDROOM	12	36	10	21	16.7	41.7						
R5/601	**W19/601**	BEDROOM	13	39	10	21	23.1	46.2	13	39	10	21	23.1	46.2
R6/601	**W20/601**	BEDROOM	12	38	9	21	25.0	44.7						
R6/601	**W21/601**	BEDROOM	12	39	10	23	16.7	41.0						
R6/601	**W22/601**	BEDROOM	6	7	6	7	0.0	0.0	14	41	12	25	14.3	39.0
R7/601	**W23/601**	LKD	11	20	10	11	9.1	45.0						
R7/601	**W24/601**	LKD	10	30	10	28	0.0	6.7	13	38	12	30	7.7	21.1
R8/601	**W25/601**	BEDROOM	4	24	4	16	0.0	33.3	4	24	4	16	0.0	33.3
R9/601	**W26/601**	BEDROOM	0	8	0	4	-	50.0						
R9/601	**W27/601**	BEDROOM	15	50	15	43	0.0	14.0						
R9/601	**W28/601**	BEDROOM	15	50	15	45	0.0	10.0	16	51	16	46	0.0	9.8

			Window						Room					
			Existing		Proposed				Existing		Proposed			
Room	Window	Room Use	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss
R10/601	**W29/601**	LKD	15	50	15	45	0.0	10.0						
R10/601	**W30/601**	LKD	15	51	15	45	0.0	11.8						
R10/601	**W31/601**	LKD	16	52	16	48	0.0	7.7						
R10/601	**W32/601**	LKD	16	25	16	25	0.0	0.0	17	53	17	49	0.0	7.5
R11/601	**W33/601**	BEDROOM	4	15	4	15	0.0	0.0						
R11/601	**W34/601**	BEDROOM	25	74	25	74	0.0	0.0						
R11/601	**W35/601**	BEDROOM	24	73	24	73	0.0	0.0	25	75	25	75	0.0	0.0
R3/602	**W6/602**	BEDROOM	0	0	0	0	-	-						
R3/602	**W7/602**	BEDROOM	0	0	0	0	-	-						
R3/602	**W8/602**	BEDROOM	0	0	0	0	-	-	0	0	0	0	-	-
R4/602	**W9/602**	BEDROOM	0	0	0	0	-	-						
R4/602	**W10/602**	BEDROOM	12	28	6	16	50.0	42.9						
R4/602	**W11/602**	BEDROOM	13	30	7	18	46.2	40.0	13	30	7	18	46.2	40.0
R5/602	**W12/602**	BEDROOM	13	31	8	18	38.5	41.9						
R5/602	**W13/602**	BEDROOM	13	33	8	18	38.5	45.5	13	33	8	18	38.5	45.5
R6/602	**W14/602**	BEDROOM	12	33	6	16	50.0	51.5						
R6/602	**W15/602**	BEDROOM	13	35	7	17	46.2	51.4	13	35	7	17	46.2	51.4
R7/602	**W16/602**	BEDROOM	13	37	8	18	38.5	51.4						
R7/602	**W17/602**	BEDROOM	14	40	10	21	28.6	47.5	14	40	10	21	28.6	47.5
R8/602	**W18/602**	BEDROOM	14	41	10	22	28.6	46.3						
R8/602	**W19/602**	BEDROOM	14	42	10	22	28.6	47.6	14	42	10	22	28.6	47.6
R9/602	**W20/602**	BEDROOM	13	41	10	23	23.1	43.9						
R9/602	**W21/602**	BEDROOM	15	43	13	27	13.3	37.2						
R9/602	**W22/602**	BEDROOM	7	9	7	9	0.0	0.0	16	44	14	28	12.5	36.4
R10/602	**W23/602**	LIVINGROOM	13	22	12	13	7.7	40.9						

			Window						Room					
			Existing		Proposed				Existing		Proposed			
Room	Window	Room Use	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss
R10/602	**W24/602**	LIVINGROOM	12	32	11	29	8.3	9.4	15	40	14	32	6.7	20.0
R11/602	**W25/602**	BEDROOM	6	26	5	17	16.7	34.6	6	26	5	17	16.7	34.6
R12/602	**W26/602**	BEDROOM	0	11	0	4	-	63.6						
R12/602	**W27/602**	BEDROOM	17	53	17	45	0.0	15.1						
R12/602	**W28/602**	BEDROOM	17	53	17	47	0.0	11.3	18	54	18	48	0.0	11.1
R13/602	**W29/602**	LIVINGROOM	17	53	17	47	0.0	11.3						
R13/602	**W30/602**	LIVINGROOM	17	54	17	47	0.0	13.0						
R13/602	**W31/602**	LIVINGROOM	17	54	17	49	0.0	9.3						
R13/602	**W32/602**	LIVINGROOM	17	26	17	26	0.0	0.0	18	55	18	50	0.0	9.1
R14/602	**W33/602**	BEDROOM	4	14	4	14	0.0	0.0						
R14/602	**W34/602**	BEDROOM	26	75	26	75	0.0	0.0						
R14/602	**W35/602**	BEDROOM	25	74	25	74	0.0	0.0	26	76	26	76	0.0	0.0
R3/603	**W6/603**	BEDROOM	0	2	0	2	-	0.0						
R3/603	**W7/603**	BEDROOM	0	1	0	1	-	0.0						
R3/603	**W8/603**	BEDROOM	0	1	0	1	-	0.0	0	2	0	2	-	0.0
R4/603	**W9/603**	BEDROOM	0	0	0	0	-	-						
R4/603	**W10/603**	BEDROOM	14	31	6	18	57.1	41.9						
R4/603	**W11/603**	BEDROOM	14	31	7	19	50.0	38.7	15	32	7	19	53.3	40.6
R5/603	**W12/603**	LKD	15	33	8	19	46.7	42.4						
R5/603	**W13/603**	LKD	15	35	8	20	46.7	42.9						
R5/603	**W14/603**	LKD	13	34	6	18	53.8	47.1						
R5/603	**W15/603**	LKD	14	36	7	19	50.0	47.2	15	37	8	20	46.7	45.9
R6/603	**W16/603**	BEDROOM	15	39	8	20	46.7	48.7						
R6/603	**W17/603**	BEDROOM	15	41	10	23	33.3	43.9	15	41	10	23	33.3	43.9
R7/603	**W18/603**	BEDROOM	15	42	10	23	33.3	45.2						

			Window						Room					
			Existing		Proposed				Existing		Proposed			
Room	Window	Room Use	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss
R7/603	**W19/603**	BEDROOM	15	43	10	23	33.3	46.5	15	43	10	23	33.3	46.5
R8/603	**W20/603**	BEDROOM	15	43	11	24	26.7	44.2						
R8/603	**W21/603**	BEDROOM	16	44	13	27	18.8	38.6						
R8/603	**W22/603**	BEDROOM	8	10	8	10	0.0	0.0	17	45	14	28	17.6	37.8
R9/603	**W23/603**	LIVINGROOM	14	24	13	15	7.1	37.5						
R9/603	**W24/603**	LIVINGROOM	12	32	11	29	8.3	9.4	16	41	15	33	6.3	19.5
R10/603	**W25/603**	BEDROOM	6	27	5	17	16.7	37.0	6	27	5	17	16.7	37.0
R11/603	**W26/603**	BEDROOM	1	12	1	5	0.0	58.3						
R11/603	**W27/603**	BEDROOM	18	54	18	46	0.0	14.8						
R11/603	**W28/603**	BEDROOM	18	54	18	48	0.0	11.1	19	55	19	49	0.0	10.9
R12/603	**W29/603**	LKD	18	54	18	48	0.0	11.1						
R12/603	**W30/603**	LKD	17	54	17	47	0.0	13.0						
R12/603	**W31/603**	LKD	17	54	17	49	0.0	9.3						
R12/603	**W32/603**	LKD	18	27	18	27	0.0	0.0	20	57	20	52	0.0	8.8
R3/604	**W6/604**	BEDROOM	0	3	0	3	-	0.0						
R3/604	**W7/604**	BEDROOM	0	3	0	3	-	0.0						
R3/604	**W8/604**	BEDROOM	0	2	0	2	-	0.0	0	3	0	3	-	0.0
R4/604	**W9/604**	BEDROOM	0	0	0	0	-	-						
R4/604	**W10/604**	BEDROOM	14	33	6	22	57.1	33.3						
R4/604	**W11/604**	BEDROOM	15	34	7	23	53.3	32.4	15	34	7	23	53.3	32.4
R5/604	**W12/604**	LKD	15	35	8	23	46.7	34.3						
R5/604	**W13/604**	LKD	16	38	8	25	50.0	34.2						
R5/604	**W14/604**	LKD	15	38	7	22	53.3	42.1						
R5/604	**W15/604**	LKD	16	39	8	23	50.0	41.0	16	39	8	25	50.0	35.9
R6/604	**W16/604**	BEDROOM	17	42	8	22	52.9	47.6						

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			Window						Room					
			Existing		Proposed				Existing		Proposed			
Room	Window	Room Use	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss
R6/604	**W17/604**	BEDROOM	17	43	10	25	41.2	41.9	17	43	10	25	41.2	41.9
R7/604	**W18/604**	BEDROOM	17	44	10	25	41.2	43.2						
R7/604	**W19/604**	BEDROOM	17	45	11	26	35.3	42.2	18	46	11	26	38.9	43.5
R8/604	**W20/604**	BEDROOM	17	45	12	27	29.4	40.0						
R8/604	**W21/604**	BEDROOM	18	46	13	29	27.8	37.0						
R8/604	**W22/604**	BEDROOM	8	11	8	11	0.0	0.0	19	47	14	30	26.3	36.2
R9/604	**W23/604**	LKD	15	25	13	15	13.3	40.0						
R9/604	**W24/604**	LKD	12	32	11	29	8.3	9.4	17	42	15	33	11.8	21.4
R10/604	**W25/604**	BEDROOM	7	28	5	17	28.6	39.3	7	28	5	17	28.6	39.3
R11/604	**W26/604**	BEDROOM	2	13	2	6	0.0	53.8						
R11/604	**W27/604**	BEDROOM	18	54	18	46	0.0	14.8						
R11/604	**W28/604**	BEDROOM	20	56	20	50	0.0	10.7	20	56	20	50	0.0	10.7
R12/604	**W29/604**	LKD	20	56	20	50	0.0	10.7						
R12/604	**W30/604**	LKD	19	56	19	49	0.0	12.5						
R12/604	**W31/604**	LKD	19	56	19	51	0.0	8.9						
R12/604	**W32/604**	LKD	19	30	19	30	0.0	0.0	21	58	21	53	0.0	8.6
R13/604	**W33/604**	BEDROOM	8	21	8	21	0.0	0.0						
R13/604	**W34/604**	BEDROOM	28	78	28	78	0.0	0.0						
R13/604	**W35/604**	BEDROOM	27	77	27	77	0.0	0.0						
R13/604	**W36/604**	BEDROOM	26	76	26	76	0.0	0.0	28	80	28	80	0.0	0.0
R2/605	**W5/605**	BEDROOM	0	4	0	4	-	0.0						
R2/605	**W6/605**	BEDROOM	0	4	0	4	-	0.0						
R2/605	**W7/605**	BEDROOM	0	3	0	3	-	0.0						
R2/605	**W8/605**	BEDROOM	0	4	0	4	-	0.0	0	5	0	5	-	0.0
R3/605	**W9/605**	BEDROOM	0	0	0	0	-	-						

			Window						Room					
			Existing		Proposed				Existing		Proposed			
Room	Window	Room Use	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss
R3/605	**W10/605**	BEDROOM	14	37	6	28	57.1	24.3						
R3/605	**W11/605**	BEDROOM	15	38	7	28	53.3	26.3	15	38	7	29	53.3	23.7
R4/605	**W12/605**	BEDROOM	16	39	8	29	50.0	25.6						
R4/605	**W13/605**	BEDROOM	16	40	8	28	50.0	30.0	16	40	8	29	50.0	27.5
R5/605	**W14/605**	LKD	15	39	7	26	53.3	33.3						
R5/605	**W15/605**	LKD	16	40	8	27	50.0	32.5						
R5/605	**W16/605**	LKD	17	43	8	26	52.9	39.5						
R5/605	**W17/605**	LKD	17	43	10	28	41.2	34.9	18	44	11	30	38.9	31.8
R6/605	**W18/605**	BEDROOM	17	45	10	29	41.2	35.6						
R6/605	**W19/605**	BEDROOM	18	46	11	29	38.9	37.0	18	47	11	30	38.9	36.2
R7/605	**W20/605**	BEDROOM	18	46	12	30	33.3	34.8						
R7/605	**W21/605**	BEDROOM	18	47	13	32	27.8	31.9						
R7/605	**W22/605**	BEDROOM	8	10	8	10	0.0	0.0	19	48	14	33	26.3	31.3
R8/605	**W23/605**	LKD	15	26	13	15	13.3	42.3						
R8/605	**W24/605**	LKD	12	32	11	30	8.3	6.3	17	43	15	34	11.8	20.9
R9/605	**W25/605**	BEDROOM	7	28	5	18	28.6	35.7	7	28	5	18	28.6	35.7
R10/605	**W26/605**	BEDROOM	2	13	2	6	0.0	53.8						
R10/605	**W27/605**	BEDROOM	19	55	19	47	0.0	14.5						
R10/605	**W28/605**	BEDROOM	20	56	20	50	0.0	10.7	20	56	20	50	0.0	10.7
R11/605	**W29/605**	LKD	20	56	20	50	0.0	10.7						
R11/605	**W30/605**	LKD	19	56	19	49	0.0	12.5						
R11/605	**W31/605**	LKD	19	56	19	51	0.0	8.9						
R11/605	**W32/605**	LKD	20	31	20	31	0.0	0.0	21	58	21	53	0.0	8.6
R12/605	**W33/605**	BEDROOM	9	22	9	22	0.0	0.0						
R12/605	**W34/605**	BEDROOM	29	79	29	79	0.0	0.0						

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			Window						Room					
			Existing		Proposed				Existing		Proposed			
Room	Window	Room Use	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss
R12/605	**W35/605**	BEDROOM	29	79	29	79	0.0	0.0	29	81	29	81	0.0	0.0
R2/606	**W5/606**	BEDROOM	0	6	0	6	-	0.0						
R2/606	**W6/606**	BEDROOM	0	6	0	6	-	0.0						
R2/606	**W7/606**	BEDROOM	0	6	0	6	-	0.0						
R2/606	**W8/606**	BEDROOM	0	7	0	7	-	0.0	0	7	0	7	-	0.0
R3/606	**W9/606**	BEDROOM	0	0	0	0	-	-						
R3/606	**W10/606**	BEDROOM	14	40	8	34	42.9	15.0						
R3/606	**W11/606**	BEDROOM	15	41	9	35	40.0	14.6	15	41	9	35	40.0	14.6
R4/606	**W12/606**	BEDROOM	16	42	10	35	37.5	16.7						
R4/606	**W13/606**	BEDROOM	16	42	9	34	43.8	19.0	16	42	10	35	37.5	16.7
R5/606	**W14/606**	LKD	15	41	8	33	46.7	19.5						
R5/606	**W15/606**	LKD	16	42	9	34	43.8	19.0						
R5/606	**W16/606**	LKD	17	45	9	33	47.1	26.7						
R5/606	**W17/606**	LKD	17	45	10	34	41.2	24.4	18	46	11	36	38.9	21.7
R6/606	**W18/606**	BEDROOM	17	46	10	33	41.2	28.3						
R6/606	**W19/606**	BEDROOM	18	47	11	34	38.9	27.7	18	47	11	34	38.9	27.7
R7/606	**W20/606**	BEDROOM	18	47	12	35	33.3	25.5						
R7/606	**W21/606**	BEDROOM	18	48	13	35	27.8	27.1						
R7/606	**W22/606**	BEDROOM	8	10	8	10	0.0	0.0	19	49	14	37	26.3	24.5
R8/606	**W23/606**	LKD	16	27	14	18	12.5	33.3						
R8/606	**W24/606**	LKD	13	33	12	31	7.7	6.1	18	44	16	36	11.1	18.2
R9/606	**W25/606**	BEDROOM	7	30	5	20	28.6	33.3	7	30	5	20	28.6	33.3
R10/606	**W26/606**	BEDROOM	2	14	2	7	0.0	50.0						
R10/606	**W27/606**	BEDROOM	20	56	20	48	0.0	14.3						
R10/606	**W28/606**	BEDROOM	20	56	20	50	0.0	10.7	20	56	20	51	0.0	8.9

			Window						Room					
			Existing		Proposed				Existing		Proposed			
Room	Window	Room Use	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss
R11/606	**W29/606**	LKD	20	56	20	50	0.0	10.7						
R11/606	**W30/606**	LKD	20	57	20	51	0.0	10.5						
R11/606	**W31/606**	LKD	19	56	19	51	0.0	8.9						
R11/606	**W32/606**	LKD	21	33	21	33	0.0	0.0	21	58	21	53	0.0	8.6
R12/606	**W33/606**	BEDROOM	9	22	9	22	0.0	0.0						
R12/606	**W34/606**	BEDROOM	29	79	29	79	0.0	0.0						
R12/606	**W35/606**	BEDROOM	29	79	29	79	0.0	0.0	29	81	29	81	0.0	0.0
R2/607	**W5/607**	BEDROOM	0	7	0	7	-	0.0						
R2/607	**W6/607**	BEDROOM	0	7	0	7	-	0.0						
R2/607	**W7/607**	BEDROOM	0	7	0	7	-	0.0						
R2/607	**W8/607**	BEDROOM	0	7	0	7	-	0.0	0	8	0	8	-	0.0
R3/607	**W9/607**	BEDROOM	0	0	0	0	-	-						
R3/607	**W10/607**	BEDROOM	15	44	10	39	33.3	11.4						
R3/607	**W11/607**	BEDROOM	15	44	10	39	33.3	11.4	15	44	11	40	26.7	9.1
R4/607	**W12/607**	BEDROOM	16	45	10	39	37.5	13.3						
R4/607	**W13/607**	BEDROOM	16	45	10	39	37.5	13.3	16	45	10	39	37.5	13.3
R5/607	**W14/607**	LKD	15	44	9	38	40.0	13.6						
R5/607	**W15/607**	LKD	16	45	10	38	37.5	15.6						
R5/607	**W16/607**	LKD	18	48	11	39	38.9	18.8						
R5/607	**W17/607**	LKD	17	47	10	37	41.2	21.3	18	48	11	40	38.9	16.7
R6/607	**W18/607**	BEDROOM	18	48	11	38	38.9	20.8						
R6/607	**W19/607**	BEDROOM	18	48	11	38	38.9	20.8	18	48	11	38	38.9	20.8
R7/607	**W20/607**	BEDROOM	18	48	12	39	33.3	18.8						
R7/607	**W21/607**	BEDROOM	18	48	13	39	27.8	18.8						
R7/607	**W22/607**	BEDROOM	9	11	9	11	0.0	0.0	19	49	14	41	26.3	16.3

			Window						Room					
			Existing		Proposed				Existing		Proposed			
Room	Window	Room Use	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss
R8/607	**W23/607**	LKD	16	28	14	22	12.5	21.4						
R8/607	**W24/607**	LKD	13	33	12	31	7.7	6.1	18	45	16	39	11.1	13.3
R9/607	**W25/607**	BEDROOM	7	31	5	24	28.6	22.6	7	31	5	24	28.6	22.6
R10/607	**W26/607**	BEDROOM	2	14	2	10	0.0	28.6						
R10/607	**W27/607**	BEDROOM	20	56	20	51	0.0	8.9						
R10/607	**W28/607**	BEDROOM	20	56	20	52	0.0	7.1	20	56	20	52	0.0	7.1
R11/607	**W29/607**	LKD	20	56	20	52	0.0	7.1						
R11/607	**W30/607**	LKD	20	57	20	52	0.0	8.8						
R11/607	**W31/607**	LKD	19	56	19	51	0.0	8.9						
R11/607	**W32/607**	LKD	21	33	21	33	0.0	0.0	21	58	21	53	0.0	8.6
R12/607	**W33/607**	BEDROOM	9	23	9	23	0.0	0.0						
R12/607	**W34/607**	BEDROOM	30	80	30	80	0.0	0.0						
R12/607	**W35/607**	BEDROOM	30	80	30	80	0.0	0.0	30	82	30	82	0.0	0.0
R2/608	**W5/608**	BEDROOM	1	9	1	9	0.0	0.0						
R2/608	**W6/608**	BEDROOM	1	9	1	9	0.0	0.0						
R2/608	**W7/608**	BEDROOM	1	9	1	9	0.0	0.0						
R2/608	**W8/608**	BEDROOM	1	9	1	9	0.0	0.0	1	10	1	10	0.0	0.0
R3/608	**W9/608**	BEDROOM	0	0	0	0	-	-						
R3/608	**W10/608**	BEDROOM	16	46	14	44	12.5	4.3						
R3/608	**W11/608**	BEDROOM	16	46	14	44	12.5	4.3	16	46	14	44	12.5	4.3
R4/608	**W12/608**	BEDROOM	17	47	14	44	17.6	6.4						
R4/608	**W13/608**	BEDROOM	16	46	13	43	18.8	6.5	17	47	14	44	17.6	6.4
R5/608	**W14/608**	LKD	15	45	12	42	20.0	6.7						
R5/608	**W15/608**	LKD	16	46	13	43	18.8	6.5						
R5/608	**W16/608**	LKD	18	49	13	43	27.8	12.2						
R5/608	**W17/608**	LKD	18	50	13	44	27.8	12.0	18	50	13	45	27.8	10.0

			Window						Room					
			Existing		Proposed				Existing		Proposed			
Room	Window	Room Use	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss
R6/608	**W18/608**	BEDROOM	18	50	13	44	27.8	12.0						
R6/608	**W19/608**	BEDROOM	18	50	13	44	27.8	12.0	18	50	13	44	27.8	12.0
R7/608	**W20/608**	BEDROOM	18	50	14	45	22.2	10.0						
R7/608	**W21/608**	BEDROOM	18	50	15	45	16.7	10.0						
R7/608	**W22/608**	BEDROOM	9	11	9	11	0.0	0.0	19	51	16	47	15.8	7.8
R8/608	**W23/608**	LKD	17	32	15	28	11.8	12.5						
R8/608	**W24/608**	LKD	13	34	12	33	7.7	2.9	18	48	16	44	11.1	8.3
R9/608	**W25/608**	BEDROOM	7	31	5	27	28.6	12.9	7	31	5	27	28.6	12.9
R10/608	**W26/608**	BEDROOM	2	14	2	12	0.0	14.3						
R10/608	**W27/608**	BEDROOM	20	56	20	54	0.0	3.6						
R10/608	**W28/608**	BEDROOM	20	56	20	54	0.0	3.6	20	56	20	54	0.0	3.6
R11/608	**W29/608**	LKD	20	56	20	54	0.0	3.6						
R11/608	**W30/608**	LKD	20	57	20	54	0.0	5.3						
R11/608	**W31/608**	LKD	20	57	20	54	0.0	5.3						
R11/608	**W32/608**	LKD	21	33	21	33	0.0	0.0	21	58	21	55	0.0	5.2
R12/608	**W33/608**	BEDROOM	9	24	9	24	0.0	0.0						
R12/608	**W34/608**	BEDROOM	30	80	30	80	0.0	0.0						
R12/608	**W35/608**	BEDROOM	30	80	30	80	0.0	0.0	30	83	30	83	0.0	0.0
R2/609	**W5/609**	BEDROOM	2	10	2	10	0.0	0.0						
R2/609	**W6/609**	BEDROOM	2	10	2	10	0.0	0.0						
R2/609	**W7/609**	BEDROOM	2	10	2	10	0.0	0.0						
R2/609	**W8/609**	BEDROOM	2	10	2	10	0.0	0.0	2	11	2	11	0.0	0.0
R3/609	**W9/609**	BEDROOM	0	0	0	0	-	-						
R3/609	**W10/609**	BEDROOM	17	47	16	46	5.9	2.1						
R3/609	**W11/609**	BEDROOM	17	47	17	47	0.0	0.0	17	47	17	47	0.0	0.0

			Window						Room					
			Existing		Proposed				Existing		Proposed			
Room	Window	Room Use	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss
R4/609	**W12/609**	BEDROOM	18	48	17	47	5.6	2.1						
R4/609	**W13/609**	BEDROOM	18	49	17	48	5.6	2.0	18	49	17	48	5.6	2.0
R5/609	**W14/609**	LKD	16	47	15	46	6.3	2.1						
R5/609	**W15/609**	LKD	17	48	16	47	5.9	2.1						
R5/609	**W16/609**	LKD	18	50	16	48	11.1	4.0						
R5/609	**W17/609**	LKD	18	51	16	49	11.1	3.9	18	51	16	49	11.1	3.9
R6/609	**W18/609**	BEDROOM	18	51	16	49	11.1	3.9						
R6/609	**W19/609**	BEDROOM	18	51	16	49	11.1	3.9	18	51	16	49	11.1	3.9
R7/609	**W20/609**	BEDROOM	18	51	16	48	11.1	5.9						
R7/609	**W21/609**	BEDROOM	18	51	16	48	11.1	5.9						
R7/609	**W22/609**	BEDROOM	9	11	9	11	0.0	0.0	19	52	17	49	10.5	5.8
R8/609	**W23/609**	LKD	17	33	16	31	5.9	6.1						
R8/609	**W24/609**	LKD	14	40	14	40	0.0	0.0	18	54	17	52	5.6	3.7
R9/609	**W25/609**	BEDROOM	7	32	6	30	14.3	6.3	7	32	6	30	14.3	6.3
R10/609	**W26/609**	BEDROOM	2	14	2	13	0.0	7.1						
R10/609	**W27/609**	BEDROOM	20	56	20	55	0.0	1.8						
R10/609	**W28/609**	BEDROOM	20	56	20	55	0.0	1.8	20	56	20	55	0.0	1.8
R11/609	**W29/609**	LKD	20	56	20	55	0.0	1.8						
R11/609	**W30/609**	LKD	20	57	20	56	0.0	1.8						
R11/609	**W31/609**	LKD	20	57	20	57	0.0	0.0						
R11/609	**W32/609**	LKD	21	34	21	34	0.0	0.0	21	58	21	58	0.0	0.0
R12/609	**W33/609**	BEDROOM	9	24	9	24	0.0	0.0						
R12/609	**W34/609**	BEDROOM	30	80	30	80	0.0	0.0						
R12/609	**W35/609**	BEDROOM	30	80	30	80	0.0	0.0	30	83	30	83	0.0	0.0

			Window						Room					
			Existing		Proposed				Existing		Proposed			
Room	Window	Room Use	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss
R3/610	**W6/610**	BEDROOM	2	10	2	10	0.0	0.0						
R3/610	**W7/610**	BEDROOM	2	10	2	10	0.0	0.0						
R3/610	**W8/610**	BEDROOM	2	13	2	13	0.0	0.0	2	13	2	13	0.0	0.0
R4/610	**W9/610**	BEDROOM	0	0	0	0	-	-						
R4/610	**W10/610**	BEDROOM	18	48	18	48	0.0	0.0						
R4/610	**W11/610**	BEDROOM	18	48	18	48	0.0	0.0	18	48	18	48	0.0	0.0
R5/610	**W12/610**	LKD	18	48	18	48	0.0	0.0						
R5/610	**W13/610**	LKD	18	49	18	49	0.0	0.0						
R5/610	**W14/610**	LKD	17	48	17	48	0.0	0.0						
R5/610	**W15/610**	LKD	18	49	18	49	0.0	0.0						
R5/610	**W16/610**	LKD	18	50	18	50	0.0	0.0	18	50	18	50	0.0	0.0
R6/610	**W17/610**	BEDROOM	18	51	18	51	0.0	0.0						
R6/610	**W18/610**	BEDROOM	18	51	18	51	0.0	0.0	18	51	18	51	0.0	0.0
R7/610	**W19/610**	LKD	18	51	18	51	0.0	0.0						
R7/610	**W20/610**	LKD	18	51	18	51	0.0	0.0						
R7/610	**W21/610**	LKD	18	51	18	51	0.0	0.0						
R7/610	**W22/610**	LKD	10	12	10	12	0.0	0.0	20	53	20	53	0.0	0.0
R8/610	**W23/610**	LKD	17	33	17	33	0.0	0.0						
R8/610	**W24/610**	LKD	18	48	18	48	0.0	0.0	21	61	21	61	0.0	0.0
R9/610	**W25/610**	BEDROOM	7	44	7	44	0.0	0.0	7	44	7	44	0.0	0.0
R10/610	**W26/610**	BEDROOM	2	14	2	14	0.0	0.0						
R10/610	**W27/610**	BEDROOM	20	56	20	56	0.0	0.0						
R10/610	**W28/610**	BEDROOM	20	56	20	56	0.0	0.0	20	56	20	56	0.0	0.0
R11/610	**W29/610**	LKD	20	56	20	56	0.0	0.0						
R11/610	**W30/610**	LKD	20	57	20	57	0.0	0.0						
R11/610	**W31/610**	LKD	20	57	20	57	0.0	0.0						

			Window						Room					
			Existing		Proposed				Existing		Proposed			
Room	Window	Room Use	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss
R11/610	**W32/610**	LKD	21	55	21	55	0.0	0.0	21	64	21	64	0.0	0.0
R12/610	**W33/610**	BEDROOM	9	30	9	30	0.0	0.0						
R12/610	**W34/610**	BEDROOM	30	80	30	80	0.0	0.0						
R12/610	**W35/610**	BEDROOM	30	80	30	80	0.0	0.0	30	84	30	84	0.0	0.0
R2/611	**W5/611**		2	10	2	10	0.0	0.0						
R2/611	**W6/611**		2	10	2	10	0.0	0.0						
R2/611	**W7/611**		2	10	2	10	0.0	0.0						
R2/611	**W8/611**		2	11	2	11	0.0	0.0	2	11	2	11	0.0	0.0
R3/611	**W9/611**		0	1	0	1	-	0.0						
R3/611	**W10/611**		18	48	18	48	0.0	0.0						
R3/611	**W11/611**		18	48	18	48	0.0	0.0						
R3/611	**W12/611**		18	48	18	48	0.0	0.0						
R3/611	**W13/611**		18	49	18	49	0.0	0.0	18	49	18	49	0.0	0.0
R4/611	**W14/611**		17	48	17	48	0.0	0.0						
R4/611	**W15/611**		18	49	18	49	0.0	0.0						
R4/611	**W16/611**		18	50	18	50	0.0	0.0						
R4/611	**W17/611**		18	51	18	51	0.0	0.0	18	51	18	51	0.0	0.0
R5/611	**W18/611**		18	51	18	51	0.0	0.0						
R5/611	**W19/611**		18	51	18	51	0.0	0.0	18	51	18	51	0.0	0.0
R6/611	**W20/611**		18	51	18	51	0.0	0.0						
R6/611	**W21/611**		18	51	18	51	0.0	0.0						
R6/611	**W22/611**		13	20	13	20	0.0	0.0	21	54	21	54	0.0	0.0
R7/611	**W23/611**		20	36	20	36	0.0	0.0						
R7/611	**W24/611**		23	56	23	56	0.0	0.0	24	67	24	67	0.0	0.0
R2/612	**W5/612**		2	10	2	10	0.0	0.0						
R2/612	**W6/612**		2	10	2	10	0.0	0.0						

Centrepoint
Proposed Scheme 17/03/13 IR13 - A
SUNLIGHT ANALYSIS

			Window						Room					
			Existing		Proposed				Existing		Proposed			
Room	Window	Room Use	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss
R2/612	W7/612		2	10	2	10	0.0	0.0						
R2/612	W8/612		2	11	2	11	0.0	0.0	2	11	2	11	0.0	0.0
R3/612	W9/612		0	1	0	1	-	0.0						
R3/612	W10/612		18	48	18	48	0.0	0.0						
R3/612	W11/612		18	48	18	48	0.0	0.0						
R3/612	W12/612		18	48	18	48	0.0	0.0						
R3/612	W13/612		18	49	18	49	0.0	0.0	18	49	18	49	0.0	0.0
R4/612	W14/612		17	48	17	48	0.0	0.0						
R4/612	W15/612		18	49	18	49	0.0	0.0						
R4/612	W16/612		18	50	18	50	0.0	0.0						
R4/612	W17/612		18	51	18	51	0.0	0.0	18	51	18	51	0.0	0.0
R5/612	W18/612		18	51	18	51	0.0	0.0						
R5/612	W19/612		18	51	18	51	0.0	0.0	18	51	18	51	0.0	0.0
R6/612	W20/612		18	51	18	51	0.0	0.0						
R6/612	W21/612		18	51	18	51	0.0	0.0						
R6/612	W22/612		13	20	13	20	0.0	0.0	21	54	21	54	0.0	0.0
R7/612	W23/612		20	36	20	36	0.0	0.0						
R7/612	W24/612		26	75	26	75	0.0	0.0	27	86	27	86	0.0	0.0
R2/613	W5/613		2	10	2	10	0.0	0.0						
R2/613	W6/613		2	10	2	10	0.0	0.0						
R2/613	W7/613		2	10	2	10	0.0	0.0						
R2/613	W8/613		2	11	2	11	0.0	0.0	2	11	2	11	0.0	0.0
R3/613	W9/613		0	1	0	1	-	0.0						
R3/613	W10/613		18	48	18	48	0.0	0.0						
R3/613	W11/613		18	48	18	48	0.0	0.0						
R3/613	W12/613		18	48	18	48	0.0	0.0						
R3/613	W13/613		18	49	18	49	0.0	0.0	18	49	18	49	0.0	0.0

Room	Window	Room Use	Window Existing Winter APSH	Window Existing Annual APSH	Window Proposed Winter APSH	Window Proposed Annual APSH	Window Winter %Loss	Window Annual %Loss	Room Existing Winter APSH	Room Existing Annual APSH	Room Proposed Winter APSH	Room Proposed Annual APSH	Room Winter %Loss	Room Annual %Loss
R4/613	W14/613		17	48	17	48	0.0	0.0						
R4/613	W15/613		18	49	18	49	0.0	0.0						
R4/613	W16/613		18	50	18	50	0.0	0.0						
R4/613	W17/613		18	51	18	51	0.0	0.0	18	51	18	51	0.0	0.0
R5/613	W18/613		18	51	18	51	0.0	0.0						
R5/613	W19/613		18	51	18	51	0.0	0.0	18	51	18	51	0.0	0.0
R6/613	W20/613		18	51	18	51	0.0	0.0						
R6/613	W21/613		18	51	18	51	0.0	0.0						
R6/613	W22/613		13	20	13	20	0.0	0.0	21	54	21	54	0.0	0.0
R7/613	W23/613		20	36	20	36	0.0	0.0						
R7/613	W24/613		29	85	29	85	0.0	0.0	30	96	30	96	0.0	0.0
R2/614	W5/614		2	10	2	10	0.0	0.0						
R2/614	W6/614		2	10	2	10	0.0	0.0						
R2/614	W7/614		2	10	2	10	0.0	0.0						
R2/614	W8/614		2	13	2	13	0.0	0.0	2	13	2	13	0.0	0.0
R3/614	W9/614		0	1	0	1	-	0.0						
R3/614	W10/614		18	48	18	48	0.0	0.0						
R3/614	W11/614		18	48	18	48	0.0	0.0						
R3/614	W12/614		18	48	18	48	0.0	0.0						
R3/614	W13/614		18	49	18	49	0.0	0.0	18	49	18	49	0.0	0.0
R4/614	W14/614		17	48	17	48	0.0	0.0						
R4/614	W15/614		18	49	18	49	0.0	0.0						
R4/614	W16/614		18	50	18	50	0.0	0.0						
R4/614	W17/614		18	51	18	51	0.0	0.0	18	51	18	51	0.0	0.0
R5/614	W18/614		18	51	18	51	0.0	0.0						
R5/614	W19/614		18	51	18	51	0.0	0.0	18	51	18	51	0.0	0.0

			Window						Room					
			Existing		Proposed				Existing		Proposed			
Room	Window	Room Use	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss
R6/614	W20/614		18	51	18	51	0.0	0.0						
R6/614	W21/614		18	51	18	51	0.0	0.0						
R6/614	W22/614		19	41	19	41	0.0	0.0	23	62	23	62	0.0	0.0
R7/614	W23/614		21	58	21	58	0.0	0.0						
R7/614	W24/614		29	85	29	85	0.0	0.0	30	97	30	97	0.0	0.0
R5/6111	W24/6111		30	86	30	86	0.0	0.0						
R5/6111	W25/6111		30	87	30	87	0.0	0.0						
R5/6111	W26/6111		30	87	30	87	0.0	0.0						
R5/6111	W27/6111		30	86	30	86	0.0	0.0						
R5/6111	W28/6111		21	59	21	59	0.0	0.0						
R5/6111	W29/6111		22	61	22	61	0.0	0.0						
R5/6111	W30/6111		22	61	22	61	0.0	0.0	30	94	30	94	0.0	0.0
R6/6111	W31/6111		22	61	22	61	0.0	0.0						
R6/6111	W32/6111		22	61	22	61	0.0	0.0						
R6/6111	W33/6111		22	61	22	61	0.0	0.0						
R6/6111	W34/6111		21	59	21	59	0.0	0.0	22	61	22	61	0.0	0.0
R7/6111	W35/6111		20	56	20	56	0.0	0.0						
R7/6111	W36/6111		22	61	22	61	0.0	0.0						
R7/6111	W37/6111		22	59	22	59	0.0	0.0	22	61	22	61	0.0	0.0
VESTRY, 1-5 FLITCROFT STREET														
R1/302	W1/302		0	9	0	9	-	0.0						
R1/302	W2/302		16	54	16	54	0.0	0.0	16	55	16	55	0.0	0.0
28 DENMARK STREET														
R1/440	W1/440		11	51	11	51	0.0	0.0						
R1/440	W2/440		11	51	11	51	0.0	0.0						

			Window						Room					
			Existing		Proposed				Existing		Proposed			
Room	Window	Room Use	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss
R1/440	W3/440		12	55	12	55	0.0	0.0						
R1/440	W4/440		11	45	11	45	0.0	0.0						
R1/440	W5/440		13	46	13	46	0.0	0.0						
R1/440	W6/440		13	44	13	44	0.0	0.0						
R1/440	W7/440		1	3	1	3	0.0	0.0						
R1/440	W8/440		1	10	1	10	0.0	0.0						
R1/440	W9/440		1	8	1	8	0.0	0.0						
R1/440	W10/440		1	11	1	11	0.0	0.0	16	60	16	60	0.0	0.0
R1/441	W1/441		15	61	15	61	0.0	0.0						
R1/441	W2/441		16	62	16	62	0.0	0.0						
R1/441	W3/441		15	63	15	63	0.0	0.0						
R1/441	W4/441		17	65	17	65	0.0	0.0						
R1/441	W5/441		15	62	15	62	0.0	0.0						
R1/441	W6/441		16	63	16	63	0.0	0.0						
R1/441	W7/441		14	60	14	60	0.0	0.0						
R1/441	W8/441		14	60	14	60	0.0	0.0						
R1/441	W9/441		13	55	13	55	0.0	0.0						
R1/441	W10/441		14	56	14	56	0.0	0.0						
R1/441	W11/441		14	51	14	51	0.0	0.0						
R1/441	W12/441		15	53	15	53	0.0	0.0						
R1/441	W13/441		6	32	6	32	0.0	0.0						
R1/441	W14/441		1	13	1	13	0.0	0.0						
R1/441	W15/441		0	7	0	7	-	0.0						
R1/441	W17/441		1	13	1	13	0.0	0.0	22	72	22	72	0.0	0.0
R1/442	W1/442		18	64	18	64	0.0	0.0						
R1/442	W2/442		20	66	20	66	0.0	0.0						
R1/442	W3/442		18	67	18	67	0.0	0.0						
R1/442	W4/442		21	71	21	71	0.0	0.0						
R1/442	W5/442		19	67	19	67	0.0	0.0						
R1/442	W6/442		21	69	21	69	0.0	0.0						
R1/442	W7/442		18	64	18	64	0.0	0.0						
R1/442	W8/442		19	65	19	65	0.0	0.0						

			Window						Room					
			Existing		Proposed				Existing		Proposed			
Room	Window	Room Use	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss
R1/442	W9/442		17	59	17	59	0.0	0.0						
R1/442	W10/442		18	60	18	60	0.0	0.0						
R1/442	W11/442		15	52	15	52	0.0	0.0						
R1/442	W12/442		18	56	18	56	0.0	0.0						
R1/442	W13/442		6	32	6	32	0.0	0.0						
R1/442	W14/442		1	13	1	13	0.0	0.0						
R1/442	W16/442		0	7	0	7	-	0.0						
R1/442	W18/442		1	13	1	13	0.0	0.0	25	76	25	76	0.0	0.0
R1/443	W1/443		23	70	23	70	0.0	0.0						
R1/443	W2/443		19	56	19	56	0.0	0.0						
R1/443	W3/443		20	60	20	60	0.0	0.0						
R1/443	W4/443		7	33	7	33	0.0	0.0						
R1/443	W5/443		2	14	2	14	0.0	0.0						
R1/443	W6/443		0	7	0	7	-	0.0						
R1/443	W7/443		2	16	2	16	0.0	0.0	27	74	27	74	0.0	0.0
R1/444	W1/444		23	69	23	69	0.0	0.0						
R1/444	W2/444		20	57	20	57	0.0	0.0						
R1/444	W3/444		23	76	23	76	0.0	0.0						
R1/444	W4/444		23	63	23	63	0.0	0.0						
R1/444	W5/444		9	36	9	36	0.0	0.0						
R1/444	W6/444		2	14	2	14	0.0	0.0						
R1/444	W7/444		0	2	0	2	-	0.0						
R1/444	W8/444		2	12	2	12	0.0	0.0	26	82	26	82	0.0	0.0

			Window						Room					
			Existing		Proposed				Existing		Proposed			
Room	Window	Room Use	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss
1-53 MATILDA APARTMENTS, 4 EARNSHAW STREET														
R2/601	**W5/601**	LIVINGROOM	0	0	0	0	-	-						
R2/601	**W6/601**	LIVINGROOM	0	0	0	0	-	-						
R2/601	**W7/601**	LIVINGROOM	0	0	0	0	-	-						
R2/601	**W8/601**	LIVINGROOM	0	0	0	0	-	-	0	0	0	0	-	-
R3/601	**W9/601**	LKD	0	0	0	0	-	-						
R3/601	**W10/601**	LKD	9	25	6	15	33.3	40.0						
R3/601	**W11/601**	LKD	10	26	6	15	40.0	42.3						
R3/601	**W12/601**	LKD	10	27	7	16	30.0	40.7						
R3/601	**W13/601**	LKD	10	30	8	17	20.0	43.3	10	30	8	17	20.0	43.3
R4/601	**W14/601**	BEDROOM	9	30	6	15	33.3	50.0						
R4/601	**W15/601**	BEDROOM	10	32	7	16	30.0	50.0						
R4/601	**W16/601**	BEDROOM	11	33	8	17	27.3	48.5	11	33	8	17	27.3	48.5
R5/601	**W17/601**	BEDROOM	11	35	9	18	18.2	48.6						
R5/601	**W18/601**	BEDROOM	12	36	10	21	16.7	41.7						
R5/601	**W19/601**	BEDROOM	13	39	10	21	23.1	46.2	13	39	10	21	23.1	46.2
R6/601	**W20/601**	BEDROOM	12	38	9	21	25.0	44.7						
R6/601	**W21/601**	BEDROOM	12	39	10	23	16.7	41.0						
R6/601	**W22/601**	BEDROOM	6	7	6	7	0.0	0.0	14	41	12	25	14.3	39.0
R7/601	**W23/601**	LKD	11	20	10	11	9.1	45.0						
R7/601	**W24/601**	LKD	10	30	10	28	0.0	6.7	13	38	12	30	7.7	21.1
R8/601	**W25/601**	BEDROOM	4	24	4	16	0.0	33.3	4	24	4	16	0.0	33.3
R9/601	**W26/601**	BEDROOM	0	8	0	4	-	50.0						
R9/601	**W27/601**	BEDROOM	15	50	15	43	0.0	14.0						
R9/601	**W28/601**	BEDROOM	15	50	15	45	0.0	10.0	16	51	16	46	0.0	9.8

			Window						Room					
			Existing		Proposed				Existing		Proposed			
Room	Window	Room Use	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss
R10/601	**W29/601**	LKD	15	50	15	45	0.0	10.0						
R10/601	**W30/601**	LKD	15	51	15	45	0.0	11.8						
R10/601	**W31/601**	LKD	16	52	16	48	0.0	7.7						
R10/601	**W32/601**	LKD	16	25	16	25	0.0	0.0	17	53	17	49	0.0	7.5
R11/601	**W33/601**	BEDROOM	4	15	4	15	0.0	0.0						
R11/601	**W34/601**	BEDROOM	25	74	25	74	0.0	0.0						
R11/601	**W35/601**	BEDROOM	24	73	24	73	0.0	0.0	25	75	25	75	0.0	0.0
R3/602	**W6/602**	BEDROOM	0	0	0	0	-	-						
R3/602	**W7/602**	BEDROOM	0	0	0	0	-	-						
R3/602	**W8/602**	BEDROOM	0	0	0	0	-	-	0	0	0	0	-	-
R4/602	**W9/602**	BEDROOM	0	0	0	0	-	-						
R4/602	**W10/602**	BEDROOM	12	28	6	16	50.0	42.9						
R4/602	**W11/602**	BEDROOM	13	30	6	17	53.8	43.3	13	30	6	17	53.8	43.3
R5/602	**W12/602**	BEDROOM	13	31	7	17	46.2	45.2						
R5/602	**W13/602**	BEDROOM	13	33	8	18	38.5	45.5	13	33	8	18	38.5	45.5
R6/602	**W14/602**	BEDROOM	12	33	6	16	50.0	51.5						
R6/602	**W15/602**	BEDROOM	13	35	7	17	46.2	51.4	13	35	7	17	46.2	51.4
R7/602	**W16/602**	BEDROOM	13	37	8	18	38.5	51.4						
R7/602	**W17/602**	BEDROOM	14	40	9	19	35.7	52.5	14	40	9	19	35.7	52.5
R8/602	**W18/602**	BEDROOM	14	41	10	22	28.6	46.3						
R8/602	**W19/602**	BEDROOM	14	42	10	22	28.6	47.6	14	42	10	22	28.6	47.6
R9/602	**W20/602**	BEDROOM	13	41	10	23	23.1	43.9						
R9/602	**W21/602**	BEDROOM	15	43	13	27	13.3	37.2						
R9/602	**W22/602**	BEDROOM	7	9	7	9	0.0	0.0	16	44	14	28	12.5	36.4
R10/602	**W23/602**	LIVINGROOM	13	22	12	13	7.7	40.9						

			Window						Room					
			Existing		Proposed				Existing		Proposed			
Room	Window	Room Use	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss
R10/602	**W24/602**	LIVINGROOM	12	32	11	29	8.3	9.4	15	40	14	32	6.7	20.0
R11/602	**W25/602**	BEDROOM	6	26	5	17	16.7	34.6	6	26	5	17	16.7	34.6
R12/602	**W26/602**	BEDROOM	0	11	0	4	-	63.6						
R12/602	**W27/602**	BEDROOM	17	53	17	45	0.0	15.1						
R12/602	**W28/602**	BEDROOM	17	53	17	47	0.0	11.3	18	54	18	48	0.0	11.1
R13/602	**W29/602**	LIVINGROOM	17	53	17	47	0.0	11.3						
R13/602	**W30/602**	LIVINGROOM	17	54	17	47	0.0	13.0						
R13/602	**W31/602**	LIVINGROOM	17	54	17	49	0.0	9.3						
R13/602	**W32/602**	LIVINGROOM	17	26	17	26	0.0	0.0	18	55	18	50	0.0	9.1
R14/602	**W33/602**	BEDROOM	4	14	4	14	0.0	0.0						
R14/602	**W34/602**	BEDROOM	26	75	26	75	0.0	0.0						
R14/602	**W35/602**	BEDROOM	25	74	25	74	0.0	0.0	26	76	26	76	0.0	0.0
R3/603	**W6/603**	BEDROOM	0	2	0	2	-	0.0						
R3/603	**W7/603**	BEDROOM	0	1	0	1	-	0.0						
R3/603	**W8/603**	BEDROOM	0	1	0	1	-	0.0	0	2	0	2	-	0.0
R4/603	**W9/603**	BEDROOM	0	0	0	0	-	-						
R4/603	**W10/603**	BEDROOM	14	31	6	19	57.1	38.7						
R4/603	**W11/603**	BEDROOM	14	31	6	19	57.1	38.7	15	32	6	19	60.0	40.6
R5/603	**W12/603**	LKD	15	33	7	19	53.3	42.4						
R5/603	**W13/603**	LKD	15	35	8	20	46.7	42.9						
R5/603	**W14/603**	LKD	13	34	6	18	53.8	47.1						
R5/603	**W15/603**	LKD	14	36	7	19	50.0	47.2	15	37	8	20	46.7	45.9
R6/603	**W16/603**	BEDROOM	15	39	8	20	46.7	48.7						
R6/603	**W17/603**	BEDROOM	15	41	9	22	40.0	46.3	15	41	9	22	40.0	46.3
R7/603	**W18/603**	BEDROOM	15	42	10	23	33.3	45.2						

			Window						Room					
			Existing		Proposed				Existing		Proposed			
Room	Window	Room Use	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss
R7/603	**W19/603**	BEDROOM	15	43	10	23	33.3	46.5	15	43	10	23	33.3	46.5
R8/603	**W20/603**	BEDROOM	15	43	11	24	26.7	44.2						
R8/603	**W21/603**	BEDROOM	16	44	13	27	18.8	38.6						
R8/603	**W22/603**	BEDROOM	8	10	8	10	0.0	0.0	17	45	14	28	17.6	37.8
R9/603	**W23/603**	LIVINGROOM	14	24	13	15	7.1	37.5						
R9/603	**W24/603**	LIVINGROOM	12	32	11	29	8.3	9.4	16	41	15	33	6.3	19.5
R10/603	**W25/603**	BEDROOM	6	27	5	17	16.7	37.0	6	27	5	17	16.7	37.0
R11/603	**W26/603**	BEDROOM	1	12	1	5	0.0	58.3						
R11/603	**W27/603**	BEDROOM	18	54	18	46	0.0	14.8						
R11/603	**W28/603**	BEDROOM	18	54	18	48	0.0	11.1	19	55	19	49	0.0	10.9
R12/603	**W29/603**	LKD	18	54	18	48	0.0	11.1						
R12/603	**W30/603**	LKD	17	54	17	47	0.0	13.0						
R12/603	**W31/603**	LKD	17	54	17	49	0.0	9.3						
R12/603	**W32/603**	LKD	18	27	18	27	0.0	0.0	20	57	20	52	0.0	8.8
R3/604	**W6/604**	BEDROOM	0	3	0	3	-	0.0						
R3/604	**W7/604**	BEDROOM	0	3	0	3	-	0.0						
R3/604	**W8/604**	BEDROOM	0	2	0	2	-	0.0	0	3	0	3	-	0.0
R4/604	**W9/604**	BEDROOM	0	0	0	0	-	-						
R4/604	**W10/604**	BEDROOM	14	33	6	23	57.1	30.3						
R4/604	**W11/604**	BEDROOM	15	34	6	23	60.0	32.4	15	34	6	23	60.0	32.4
R5/604	**W12/604**	LKD	15	35	7	23	53.3	34.3						
R5/604	**W13/604**	LKD	16	38	8	25	50.0	34.2						
R5/604	**W14/604**	LKD	15	38	7	23	53.3	39.5						
R5/604	**W15/604**	LKD	16	39	8	24	50.0	38.5	16	39	8	25	50.0	35.9
R6/604	**W16/604**	BEDROOM	17	42	8	23	52.9	45.2						

Centrepoint
Proposed Scheme 17/03/13 IR13 - B
SUNLIGHT ANALYSIS

			Window						Room					
			Existing		Proposed				Existing		Proposed			
Room	Window	Room Use	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss
R6/604	**W17/604**	BEDROOM	17	43	9	24	47.1	44.2	17	43	9	24	47.1	44.2
R7/604	**W18/604**	BEDROOM	17	44	10	25	41.2	43.2						
R7/604	**W19/604**	BEDROOM	17	45	11	26	35.3	42.2	18	46	11	26	38.9	43.5
R8/604	**W20/604**	BEDROOM	17	45	12	27	29.4	40.0						
R8/604	**W21/604**	BEDROOM	18	46	13	29	27.8	37.0						
R8/604	**W22/604**	BEDROOM	8	11	8	11	0.0	0.0	19	47	14	30	26.3	36.2
R9/604	**W23/604**	LKD	15	25	13	15	13.3	40.0						
R9/604	**W24/604**	LKD	12	32	11	29	8.3	9.4	17	42	15	33	11.8	21.4
R10/604	**W25/604**	BEDROOM	7	28	5	18	28.6	35.7	7	28	5	18	28.6	35.7
R11/604	**W26/604**	BEDROOM	2	13	2	6	0.0	53.8						
R11/604	**W27/604**	BEDROOM	18	54	18	46	0.0	14.8						
R11/604	**W28/604**	BEDROOM	20	56	20	50	0.0	10.7	20	56	20	50	0.0	10.7
R12/604	**W29/604**	LKD	20	56	20	50	0.0	10.7						
R12/604	**W30/604**	LKD	19	56	19	49	0.0	12.5						
R12/604	**W31/604**	LKD	19	56	19	51	0.0	8.9						
R12/604	**W32/604**	LKD	19	30	19	30	0.0	0.0	21	58	21	53	0.0	8.6
R13/604	**W33/604**	BEDROOM	8	21	8	21	0.0	0.0						
R13/604	**W34/604**	BEDROOM	28	78	28	78	0.0	0.0						
R13/604	**W35/604**	BEDROOM	27	77	27	77	0.0	0.0						
R13/604	**W36/604**	BEDROOM	26	76	26	76	0.0	0.0	28	80	28	80	0.0	0.0
R2/605	**W5/605**	BEDROOM	0	4	0	4	-	0.0						
R2/605	**W6/605**	BEDROOM	0	4	0	4	-	0.0						
R2/605	**W7/605**	BEDROOM	0	3	0	3	-	0.0						
R2/605	**W8/605**	BEDROOM	0	4	0	4	-	0.0	0	5	0	5	-	0.0
R3/605	**W9/605**	BEDROOM	0	0	0	0	-	-						

			Window						Room					
			Existing		Proposed				Existing		Proposed			
Room	Window	Room Use	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss
R3/605	**W10/605**	BEDROOM	14	37	6	28	57.1	24.3						
R3/605	**W11/605**	BEDROOM	15	38	7	28	53.3	26.3	15	38	7	29	53.3	23.7
R4/605	**W12/605**	BEDROOM	16	39	8	29	50.0	25.6						
R4/605	**W13/605**	BEDROOM	16	40	8	28	50.0	30.0	16	40	8	29	50.0	27.5
R5/605	**W14/605**	LKD	15	39	7	26	53.3	33.3						
R5/605	**W15/605**	LKD	16	40	8	27	50.0	32.5						
R5/605	**W16/605**	LKD	17	43	8	26	52.9	39.5						
R5/605	**W17/605**	LKD	17	43	10	28	41.2	34.9	18	44	11	30	38.9	31.8
R6/605	**W18/605**	BEDROOM	17	45	10	29	41.2	35.6						
R6/605	**W19/605**	BEDROOM	18	46	11	29	38.9	37.0	18	47	11	30	38.9	36.2
R7/605	**W20/605**	BEDROOM	18	46	12	30	33.3	34.8						
R7/605	**W21/605**	BEDROOM	18	47	13	32	27.8	31.9						
R7/605	**W22/605**	BEDROOM	8	10	8	10	0.0	0.0	19	48	14	33	26.3	31.3
R8/605	**W23/605**	LKD	15	26	13	15	13.3	42.3						
R8/605	**W24/605**	LKD	12	32	11	30	8.3	6.3	17	43	15	34	11.8	20.9
R9/605	**W25/605**	BEDROOM	7	28	5	18	28.6	35.7	7	28	5	18	28.6	35.7
R10/605	**W26/605**	BEDROOM	2	13	2	6	0.0	53.8						
R10/605	**W27/605**	BEDROOM	19	55	19	47	0.0	14.5						
R10/605	**W28/605**	BEDROOM	20	56	20	50	0.0	10.7	20	56	20	50	0.0	10.7
R11/605	**W29/605**	LKD	20	56	20	50	0.0	10.7						
R11/605	**W30/605**	LKD	19	56	19	49	0.0	12.5						
R11/605	**W31/605**	LKD	19	56	19	51	0.0	8.9						
R11/605	**W32/605**	LKD	20	31	20	31	0.0	0.0	21	58	21	53	0.0	8.6
R12/605	**W33/605**	BEDROOM	9	22	9	22	0.0	0.0						
R12/605	**W34/605**	BEDROOM	29	79	29	79	0.0	0.0						

			Window						Room					
			Existing		Proposed				Existing		Proposed			
Room	Window	Room Use	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss
R12/605	**W35/605**	BEDROOM	29	79	29	79	0.0	0.0	29	81	29	81	0.0	0.0
R2/606	**W5/606**	BEDROOM	0	6	0	6	-	0.0						
R2/606	**W6/606**	BEDROOM	0	6	0	6	-	0.0						
R2/606	**W7/606**	BEDROOM	0	6	0	6	-	0.0						
R2/606	**W8/606**	BEDROOM	0	7	0	7	-	0.0	0	7	0	7	-	0.0
R3/606	**W9/606**	BEDROOM	0	0	0	0	-	-						
R3/606	**W10/606**	BEDROOM	14	40	9	35	35.7	12.5						
R3/606	**W11/606**	BEDROOM	15	41	10	36	33.3	12.2	15	41	10	36	33.3	12.2
R4/606	**W12/606**	BEDROOM	16	42	10	35	37.5	16.7						
R4/606	**W13/606**	BEDROOM	16	42	10	35	37.5	16.7	16	42	10	35	37.5	16.7
R5/606	**W14/606**	LKD	15	41	9	34	40.0	17.1						
R5/606	**W15/606**	LKD	16	42	11	36	31.3	14.3						
R5/606	**W16/606**	LKD	17	45	10	35	41.2	22.2						
R5/606	**W17/606**	LKD	17	45	10	35	41.2	22.2	18	46	11	36	38.9	21.7
R6/606	**W18/606**	BEDROOM	17	46	10	34	41.2	26.1						
R6/606	**W19/606**	BEDROOM	18	47	11	35	38.9	25.5	18	47	11	35	38.9	25.5
R7/606	**W20/606**	BEDROOM	18	47	12	35	33.3	25.5						
R7/606	**W21/606**	BEDROOM	18	48	13	36	27.8	25.0						
R7/606	**W22/606**	BEDROOM	8	10	8	10	0.0	0.0	19	49	14	37	26.3	24.5
R8/606	**W23/606**	LKD	16	27	14	18	12.5	33.3						
R8/606	**W24/606**	LKD	13	33	12	31	7.7	6.1	18	44	16	36	11.1	18.2
R9/606	**W25/606**	BEDROOM	7	30	5	20	28.6	33.3	7	30	5	20	28.6	33.3
R10/606	**W26/606**	BEDROOM	2	14	2	7	0.0	50.0						
R10/606	**W27/606**	BEDROOM	20	56	20	48	0.0	14.3						
R10/606	**W28/606**	BEDROOM	20	56	20	50	0.0	10.7	20	56	20	51	0.0	8.9

			Window						Room					
			Existing		Proposed				Existing		Proposed			
Room	Window	Room Use	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss
R11/606	**W29/606**	LKD	20	56	20	50	0.0	10.7						
R11/606	**W30/606**	LKD	20	57	20	51	0.0	10.5						
R11/606	**W31/606**	LKD	19	56	19	51	0.0	8.9						
R11/606	**W32/606**	LKD	21	33	21	33	0.0	0.0	21	58	21	53	0.0	8.6
R12/606	**W33/606**	BEDROOM	9	22	9	22	0.0	0.0						
R12/606	**W34/606**	BEDROOM	29	79	29	79	0.0	0.0						
R12/606	**W35/606**	BEDROOM	29	79	29	79	0.0	0.0	29	81	29	81	0.0	0.0
R2/607	**W5/607**	BEDROOM	0	7	0	7	-	0.0						
R2/607	**W6/607**	BEDROOM	0	7	0	7	-	0.0						
R2/607	**W7/607**	BEDROOM	0	7	0	7	-	0.0						
R2/607	**W8/607**	BEDROOM	0	7	0	7	-	0.0	0	8	0	8	-	0.0
R3/607	**W9/607**	BEDROOM	0	0	0	0	-	-						
R3/607	**W10/607**	BEDROOM	15	44	10	39	33.3	11.4						
R3/607	**W11/607**	BEDROOM	15	44	10	39	33.3	11.4	15	44	11	40	26.7	9.1
R4/607	**W12/607**	BEDROOM	16	45	10	39	37.5	13.3						
R4/607	**W13/607**	BEDROOM	16	45	10	39	37.5	13.3	16	45	10	39	37.5	13.3
R5/607	**W14/607**	LKD	15	44	9	38	40.0	13.6						
R5/607	**W15/607**	LKD	16	45	11	39	31.3	13.3						
R5/607	**W16/607**	LKD	18	48	11	39	38.9	18.8						
R5/607	**W17/607**	LKD	17	47	10	37	41.2	21.3	18	48	11	40	38.9	16.7
R6/607	**W18/607**	BEDROOM	18	48	11	38	38.9	20.8						
R6/607	**W19/607**	BEDROOM	18	48	11	38	38.9	20.8	18	48	11	38	38.9	20.8
R7/607	**W20/607**	BEDROOM	18	48	12	39	33.3	18.8						
R7/607	**W21/607**	BEDROOM	18	48	13	39	27.8	18.8						
R7/607	**W22/607**	BEDROOM	9	11	9	11	0.0	0.0	19	49	14	41	26.3	16.3

Centrepoint
Proposed Scheme 17/03/13 IR13 - B
SUNLIGHT ANALYSIS

			Window						Room					
			Existing		Proposed				Existing		Proposed			
Room	Window	Room Use	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss
R8/607	**W23/607**	LKD	16	28	14	23	12.5	17.9						
R8/607	**W24/607**	LKD	13	33	12	32	7.7	3.0	18	45	16	41	11.1	8.9
R9/607	**W25/607**	BEDROOM	7	31	5	24	28.6	22.6	7	31	5	24	28.6	22.6
R10/607	**W26/607**	BEDROOM	2	14	2	10	0.0	28.6						
R10/607	**W27/607**	BEDROOM	20	56	20	52	0.0	7.1						
R10/607	**W28/607**	BEDROOM	20	56	20	52	0.0	7.1	20	56	20	52	0.0	7.1
R11/607	**W29/607**	LKD	20	56	20	52	0.0	7.1						
R11/607	**W30/607**	LKD	20	57	20	52	0.0	8.8						
R11/607	**W31/607**	LKD	19	56	19	51	0.0	8.9						
R11/607	**W32/607**	LKD	21	33	21	33	0.0	0.0	21	58	21	53	0.0	8.6
R12/607	**W33/607**	BEDROOM	9	23	9	23	0.0	0.0						
R12/607	**W34/607**	BEDROOM	30	80	30	80	0.0	0.0						
R12/607	**W35/607**	BEDROOM	30	80	30	80	0.0	0.0	30	82	30	82	0.0	0.0
R2/608	**W5/608**	BEDROOM	1	9	1	9	0.0	0.0						
R2/608	**W6/608**	BEDROOM	1	9	1	9	0.0	0.0						
R2/608	**W7/608**	BEDROOM	1	9	1	9	0.0	0.0						
R2/608	**W8/608**	BEDROOM	1	9	1	9	0.0	0.0	1	10	1	10	0.0	0.0
R3/608	**W9/608**	BEDROOM	0	0	0	0	-	-						
R3/608	**W10/608**	BEDROOM	16	46	14	44	12.5	4.3						
R3/608	**W11/608**	BEDROOM	16	46	14	44	12.5	4.3	16	46	14	44	12.5	4.3
R4/608	**W12/608**	BEDROOM	17	47	14	44	17.6	6.4						
R4/608	**W13/608**	BEDROOM	16	46	13	43	18.8	6.5	17	47	14	44	17.6	6.4
R5/608	**W14/608**	LKD	15	45	12	42	20.0	6.7						
R5/608	**W15/608**	LKD	16	46	13	43	18.8	6.5						
R5/608	**W16/608**	LKD	18	49	13	43	27.8	12.2						
R5/608	**W17/608**	LKD	18	50	13	44	27.8	12.0	18	50	13	45	27.8	10.0

			Window						Room					
			Existing		Proposed				Existing		Proposed			
Room	Window	Room Use	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss
R6/608	**W18/608**	BEDROOM	18	50	13	44	27.8	12.0						
R6/608	**W19/608**	BEDROOM	18	50	13	44	27.8	12.0	18	50	13	44	27.8	12.0
R7/608	**W20/608**	BEDROOM	18	50	14	45	22.2	10.0						
R7/608	**W21/608**	BEDROOM	18	50	15	45	16.7	10.0						
R7/608	**W22/608**	BEDROOM	9	11	9	11	0.0	0.0	19	51	16	47	15.8	7.8
R8/608	**W23/608**	LKD	17	32	15	28	11.8	12.5						
R8/608	**W24/608**	LKD	13	34	12	33	7.7	2.9	18	48	16	44	11.1	8.3
R9/608	**W25/608**	BEDROOM	7	31	5	27	28.6	12.9	7	31	5	27	28.6	12.9
R10/608	**W26/608**	BEDROOM	2	14	2	12	0.0	14.3						
R10/608	**W27/608**	BEDROOM	20	56	20	54	0.0	3.6						
R10/608	**W28/608**	BEDROOM	20	56	20	54	0.0	3.6	20	56	20	54	0.0	3.6
R11/608	**W29/608**	LKD	20	56	20	54	0.0	3.6						
R11/608	**W30/608**	LKD	20	57	20	54	0.0	5.3						
R11/608	**W31/608**	LKD	20	57	20	54	0.0	5.3						
R11/608	**W32/608**	LKD	21	33	21	33	0.0	0.0	21	58	21	55	0.0	5.2
R12/608	**W33/608**	BEDROOM	9	24	9	24	0.0	0.0						
R12/608	**W34/608**	BEDROOM	30	80	30	80	0.0	0.0						
R12/608	**W35/608**	BEDROOM	30	80	30	80	0.0	0.0	30	83	30	83	0.0	0.0
R2/609	**W5/609**	BEDROOM	2	10	2	10	0.0	0.0						
R2/609	**W6/609**	BEDROOM	2	10	2	10	0.0	0.0						
R2/609	**W7/609**	BEDROOM	2	10	2	10	0.0	0.0						
R2/609	**W8/609**	BEDROOM	2	10	2	10	0.0	0.0	2	11	2	11	0.0	0.0
R3/609	**W9/609**	BEDROOM	0	0	0	0	-	-						
R3/609	**W10/609**	BEDROOM	17	47	16	46	5.9	2.1						
R3/609	**W11/609**	BEDROOM	17	47	17	47	0.0	0.0	17	47	17	47	0.0	0.0

			Window						Room					
			Existing		Proposed				Existing		Proposed			
Room	Window	Room Use	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss
R4/609	**W12/609**	BEDROOM	18	48	17	47	5.6	2.1						
R4/609	**W13/609**	BEDROOM	18	49	17	48	5.6	2.0	18	49	17	48	5.6	2.0
R5/609	**W14/609**	LKD	16	47	15	46	6.3	2.1						
R5/609	**W15/609**	LKD	17	48	16	47	5.9	2.1						
R5/609	**W16/609**	LKD	18	50	16	48	11.1	4.0						
R5/609	**W17/609**	LKD	18	51	16	49	11.1	3.9	18	51	16	49	11.1	3.9
R6/609	**W18/609**	BEDROOM	18	51	16	49	11.1	3.9						
R6/609	**W19/609**	BEDROOM	18	51	16	49	11.1	3.9	18	51	16	49	11.1	3.9
R7/609	**W20/609**	BEDROOM	18	51	16	48	11.1	5.9						
R7/609	**W21/609**	BEDROOM	18	51	16	48	11.1	5.9						
R7/609	**W22/609**	BEDROOM	9	11	9	11	0.0	0.0	19	52	17	49	10.5	5.8
R8/609	**W23/609**	LKD	17	33	16	31	5.9	6.1						
R8/609	**W24/609**	LKD	14	40	14	40	0.0	0.0	18	54	17	52	5.6	3.7
R9/609	**W25/609**	BEDROOM	7	32	6	30	14.3	6.3	7	32	6	30	14.3	6.3
R10/609	**W26/609**	BEDROOM	2	14	2	13	0.0	7.1						
R10/609	**W27/609**	BEDROOM	20	56	20	55	0.0	1.8						
R10/609	**W28/609**	BEDROOM	20	56	20	55	0.0	1.8	20	56	20	55	0.0	1.8
R11/609	**W29/609**	LKD	20	56	20	55	0.0	1.8						
R11/609	**W30/609**	LKD	20	57	20	56	0.0	1.8						
R11/609	**W31/609**	LKD	20	57	20	57	0.0	0.0						
R11/609	**W32/609**	LKD	21	34	21	34	0.0	0.0	21	58	21	58	0.0	0.0
R12/609	**W33/609**	BEDROOM	9	24	9	24	0.0	0.0						
R12/609	**W34/609**	BEDROOM	30	80	30	80	0.0	0.0						
R12/609	**W35/609**	BEDROOM	30	80	30	80	0.0	0.0	30	83	30	83	0.0	0.0

			Window						Room					
			Existing		Proposed				Existing		Proposed			
Room	Window	Room Use	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss
R3/610	**W6/610**	BEDROOM	2	10	2	10	0.0	0.0						
R3/610	**W7/610**	BEDROOM	2	10	2	10	0.0	0.0						
R3/610	**W8/610**	BEDROOM	2	13	2	13	0.0	0.0	2	13	2	13	0.0	0.0
R4/610	**W9/610**	BEDROOM	0	0	0	0	-	-						
R4/610	**W10/610**	BEDROOM	18	48	18	48	0.0	0.0						
R4/610	**W11/610**	BEDROOM	18	48	18	48	0.0	0.0	18	48	18	48	0.0	0.0
R5/610	**W12/610**	LKD	18	48	18	48	0.0	0.0						
R5/610	**W13/610**	LKD	18	49	18	49	0.0	0.0						
R5/610	**W14/610**	LKD	17	48	17	48	0.0	0.0						
R5/610	**W15/610**	LKD	18	49	18	49	0.0	0.0						
R5/610	**W16/610**	LKD	18	50	18	50	0.0	0.0	18	50	18	50	0.0	0.0
R6/610	**W17/610**	BEDROOM	18	51	18	51	0.0	0.0						
R6/610	**W18/610**	BEDROOM	18	51	18	51	0.0	0.0	18	51	18	51	0.0	0.0
R7/610	**W19/610**	LKD	18	51	18	51	0.0	0.0						
R7/610	**W20/610**	LKD	18	51	18	51	0.0	0.0						
R7/610	**W21/610**	LKD	18	51	18	51	0.0	0.0						
R7/610	**W22/610**	LKD	10	12	10	12	0.0	0.0	20	53	20	53	0.0	0.0
R8/610	**W23/610**	LKD	17	33	17	33	0.0	0.0						
R8/610	**W24/610**	LKD	18	48	18	48	0.0	0.0	21	61	21	61	0.0	0.0
R9/610	**W25/610**	BEDROOM	7	44	7	44	0.0	0.0	7	44	7	44	0.0	0.0
R10/610	**W26/610**	BEDROOM	2	14	2	14	0.0	0.0						
R10/610	**W27/610**	BEDROOM	20	56	20	56	0.0	0.0						
R10/610	**W28/610**	BEDROOM	20	56	20	56	0.0	0.0	20	56	20	56	0.0	0.0
R11/610	**W29/610**	LKD	20	56	20	56	0.0	0.0						
R11/610	**W30/610**	LKD	20	57	20	57	0.0	0.0						
R11/610	**W31/610**	LKD	20	57	20	57	0.0	0.0						

			Window						Room					
			Existing		Proposed				Existing		Proposed			
Room	Window	Room Use	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss
R11/610	**W32/610**	LKD	21	55	21	55	0.0	0.0	21	64	21	64	0.0	0.0
R12/610	**W33/610**	BEDROOM	9	30	9	30	0.0	0.0						
R12/610	**W34/610**	BEDROOM	30	80	30	80	0.0	0.0						
R12/610	**W35/610**	BEDROOM	30	80	30	80	0.0	0.0	30	84	30	84	0.0	0.0
R2/611	**W5/611**		2	10	2	10	0.0	0.0						
R2/611	**W6/611**		2	10	2	10	0.0	0.0						
R2/611	**W7/611**		2	10	2	10	0.0	0.0						
R2/611	**W8/611**		2	11	2	11	0.0	0.0	2	11	2	11	0.0	0.0
R3/611	**W9/611**		0	1	0	1	-	0.0						
R3/611	**W10/611**		18	48	18	48	0.0	0.0						
R3/611	**W11/611**		18	48	18	48	0.0	0.0						
R3/611	**W12/611**		18	48	18	48	0.0	0.0						
R3/611	**W13/611**		18	49	18	49	0.0	0.0	18	49	18	49	0.0	0.0
R4/611	**W14/611**		17	48	17	48	0.0	0.0						
R4/611	**W15/611**		18	49	18	49	0.0	0.0						
R4/611	**W16/611**		18	50	18	50	0.0	0.0						
R4/611	**W17/611**		18	51	18	51	0.0	0.0	18	51	18	51	0.0	0.0
R5/611	**W18/611**		18	51	18	51	0.0	0.0						
R5/611	**W19/611**		18	51	18	51	0.0	0.0	18	51	18	51	0.0	0.0
R6/611	**W20/611**		18	51	18	51	0.0	0.0						
R6/611	**W21/611**		18	51	18	51	0.0	0.0						
R6/611	**W22/611**		13	20	13	20	0.0	0.0	21	54	21	54	0.0	0.0
R7/611	**W23/611**		20	36	20	36	0.0	0.0						
R7/611	**W24/611**		23	56	23	56	0.0	0.0	24	67	24	67	0.0	0.0
R2/612	**W5/612**		2	10	2	10	0.0	0.0						
R2/612	**W6/612**		2	10	2	10	0.0	0.0						

			Window						Room					
			Existing		Proposed				Existing		Proposed			
Room	Window	Room Use	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss
R2/612	W7/612		2	10	2	10	0.0	0.0						
R2/612	W8/612		2	11	2	11	0.0	0.0	2	11	2	11	0.0	0.0
R3/612	W9/612		0	1	0	1	-	0.0						
R3/612	W10/612		18	48	18	48	0.0	0.0						
R3/612	W11/612		18	48	18	48	0.0	0.0						
R3/612	W12/612		18	48	18	48	0.0	0.0						
R3/612	W13/612		18	49	18	49	0.0	0.0	18	49	18	49	0.0	0.0
R4/612	W14/612		17	48	17	48	0.0	0.0						
R4/612	W15/612		18	49	18	49	0.0	0.0						
R4/612	W16/612		18	50	18	50	0.0	0.0						
R4/612	W17/612		18	51	18	51	0.0	0.0	18	51	18	51	0.0	0.0
R5/612	W18/612		18	51	18	51	0.0	0.0						
R5/612	W19/612		18	51	18	51	0.0	0.0	18	51	18	51	0.0	0.0
R6/612	W20/612		18	51	18	51	0.0	0.0						
R6/612	W21/612		18	51	18	51	0.0	0.0						
R6/612	W22/612		13	20	13	20	0.0	0.0	21	54	21	54	0.0	0.0
R7/612	W23/612		20	36	20	36	0.0	0.0						
R7/612	W24/612		26	75	26	75	0.0	0.0	27	86	27	86	0.0	0.0
R2/613	W5/613		2	10	2	10	0.0	0.0						
R2/613	W6/613		2	10	2	10	0.0	0.0						
R2/613	W7/613		2	10	2	10	0.0	0.0						
R2/613	W8/613		2	11	2	11	0.0	0.0	2	11	2	11	0.0	0.0
R3/613	W9/613		0	1	0	1	-	0.0						
R3/613	W10/613		18	48	18	48	0.0	0.0						
R3/613	W11/613		18	48	18	48	0.0	0.0						
R3/613	W12/613		18	48	18	48	0.0	0.0						
R3/613	W13/613		18	49	18	49	0.0	0.0	18	49	18	49	0.0	0.0

			Window						Room					
			Existing		Proposed				Existing		Proposed			
Room	Window	Room Use	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss
R4/613	W14/613		17	48	17	48	0.0	0.0						
R4/613	W15/613		18	49	18	49	0.0	0.0						
R4/613	W16/613		18	50	18	50	0.0	0.0						
R4/613	W17/613		18	51	18	51	0.0	0.0	18	51	18	51	0.0	0.0
R5/613	W18/613		18	51	18	51	0.0	0.0						
R5/613	W19/613		18	51	18	51	0.0	0.0	18	51	18	51	0.0	0.0
R6/613	W20/613		18	51	18	51	0.0	0.0						
R6/613	W21/613		18	51	18	51	0.0	0.0						
R6/613	W22/613		13	20	13	20	0.0	0.0	21	54	21	54	0.0	0.0
R7/613	W23/613		20	36	20	36	0.0	0.0						
R7/613	W24/613		29	85	29	85	0.0	0.0	30	96	30	96	0.0	0.0
R2/614	W5/614		2	10	2	10	0.0	0.0						
R2/614	W6/614		2	10	2	10	0.0	0.0						
R2/614	W7/614		2	10	2	10	0.0	0.0						
R2/614	W8/614		2	13	2	13	0.0	0.0	2	13	2	13	0.0	0.0
R3/614	W9/614		0	1	0	1	-	0.0						
R3/614	W10/614		18	48	18	48	0.0	0.0						
R3/614	W11/614		18	48	18	48	0.0	0.0						
R3/614	W12/614		18	48	18	48	0.0	0.0						
R3/614	W13/614		18	49	18	49	0.0	0.0	18	49	18	49	0.0	0.0
R4/614	W14/614		17	48	17	48	0.0	0.0						
R4/614	W15/614		18	49	18	49	0.0	0.0						
R4/614	W16/614		18	50	18	50	0.0	0.0						
R4/614	W17/614		18	51	18	51	0.0	0.0	18	51	18	51	0.0	0.0
R5/614	W18/614		18	51	18	51	0.0	0.0						
R5/614	W19/614		18	51	18	51	0.0	0.0	18	51	18	51	0.0	0.0

Room	Window	Room Use	Window Existing Winter APSH	Window Existing Annual APSH	Window Proposed Winter APSH	Window Proposed Annual APSH	Window Winter %Loss	Window Annual %Loss	Room Existing Winter APSH	Room Existing Annual APSH	Room Proposed Winter APSH	Room Proposed Annual APSH	Room Winter %Loss	Room Annual %Loss
R6/614	W20/614		18	51	18	51	0.0	0.0						
R6/614	W21/614		18	51	18	51	0.0	0.0						
R6/614	W22/614		19	41	19	41	0.0	0.0	23	62	23	62	0.0	0.0
R7/614	W23/614		21	58	21	58	0.0	0.0						
R7/614	W24/614		29	85	29	85	0.0	0.0	30	97	30	97	0.0	0.0
R5/6111	W24/6111		30	86	30	86	0.0	0.0						
R5/6111	W25/6111		30	87	30	87	0.0	0.0						
R5/6111	W26/6111		30	87	30	87	0.0	0.0						
R5/6111	W27/6111		30	86	30	86	0.0	0.0						
R5/6111	W28/6111		21	59	21	59	0.0	0.0						
R5/6111	W29/6111		22	61	22	61	0.0	0.0						
R5/6111	W30/6111		22	61	22	61	0.0	0.0	30	94	30	94	0.0	0.0
R6/6111	W31/6111		22	61	22	61	0.0	0.0						
R6/6111	W32/6111		22	61	22	61	0.0	0.0						
R6/6111	W33/6111		22	61	22	61	0.0	0.0						
R6/6111	W34/6111		21	59	21	59	0.0	0.0	22	61	22	61	0.0	0.0
R7/6111	W35/6111		20	56	20	56	0.0	0.0						
R7/6111	W36/6111		22	61	22	61	0.0	0.0						
R7/6111	W37/6111		22	59	22	59	0.0	0.0	22	61	22	61	0.0	0.0
VESTRY, 1-5 FLITCROFT STREET														
R1/302	W1/302		0	9	0	9	-	0.0						
R1/302	W2/302		16	54	16	54	0.0	0.0	16	55	16	55	0.0	0.0
28 DENMARK STREET														
R1/440	W1/440		11	51	11	51	0.0	0.0						
R1/440	W2/440		11	51	11	51	0.0	0.0						

			Window						Room					
			Existing		Proposed				Existing		Proposed			
Room	Window	Room Use	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss
R1/440	W3/440		12	55	12	55	0.0	0.0						
R1/440	W4/440		11	45	11	45	0.0	0.0						
R1/440	W5/440		13	46	13	46	0.0	0.0						
R1/440	W6/440		13	44	13	44	0.0	0.0						
R1/440	W7/440		1	3	1	3	0.0	0.0						
R1/440	W8/440		1	10	1	10	0.0	0.0						
R1/440	W9/440		1	8	1	8	0.0	0.0						
R1/440	W10/440		1	11	1	11	0.0	0.0	16	60	16	60	0.0	0.0
R1/441	W1/441		15	61	15	61	0.0	0.0						
R1/441	W2/441		16	62	16	62	0.0	0.0						
R1/441	W3/441		15	63	15	63	0.0	0.0						
R1/441	W4/441		17	65	17	65	0.0	0.0						
R1/441	W5/441		15	62	15	62	0.0	0.0						
R1/441	W6/441		16	63	16	63	0.0	0.0						
R1/441	W7/441		14	60	14	60	0.0	0.0						
R1/441	W8/441		14	60	14	60	0.0	0.0						
R1/441	W9/441		13	55	13	55	0.0	0.0						
R1/441	W10/441		14	56	14	56	0.0	0.0						
R1/441	W11/441		14	51	14	51	0.0	0.0						
R1/441	W12/441		15	53	15	53	0.0	0.0						
R1/441	W13/441		6	32	6	32	0.0	0.0						
R1/441	W14/441		1	13	1	13	0.0	0.0						
R1/441	W15/441		0	7	0	7	-	0.0						
R1/441	W17/441		1	13	1	13	0.0	0.0	22	72	22	72	0.0	0.0
R1/442	W1/442		18	64	18	64	0.0	0.0						
R1/442	W2/442		20	66	20	66	0.0	0.0						
R1/442	W3/442		18	67	18	67	0.0	0.0						
R1/442	W4/442		21	71	21	71	0.0	0.0						
R1/442	W5/442		19	67	19	67	0.0	0.0						
R1/442	W6/442		21	69	21	69	0.0	0.0						
R1/442	W7/442		18	64	18	64	0.0	0.0						
R1/442	W8/442		19	65	19	65	0.0	0.0						

Centrepoint
Proposed Scheme 17/03/13 IR13 - B
SUNLIGHT ANALYSIS

			Window						Room					
			Existing		Proposed				Existing		Proposed			
Room	Window	Room Use	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss	Winter APSH	Annual APSH	Winter APSH	Annual APSH	Winter %Loss	Annual %Loss
R1/442	W9/442		17	59	17	59	0.0	0.0						
R1/442	W10/442		18	60	18	60	0.0	0.0						
R1/442	W11/442		15	52	15	52	0.0	0.0						
R1/442	W12/442		18	56	18	56	0.0	0.0						
R1/442	W13/442		6	32	6	32	0.0	0.0						
R1/442	W14/442		1	13	1	13	0.0	0.0						
R1/442	W16/442		0	7	0	7	-	0.0						
R1/442	W18/442		1	13	1	13	0.0	0.0	25	76	25	76	0.0	0.0
R1/443	W1/443		23	70	23	70	0.0	0.0						
R1/443	W2/443		19	56	19	56	0.0	0.0						
R1/443	W3/443		20	60	20	60	0.0	0.0						
R1/443	W4/443		7	33	7	33	0.0	0.0						
R1/443	W5/443		2	14	2	14	0.0	0.0						
R1/443	W6/443		0	7	0	7	-	0.0						
R1/443	W7/443		2	16	2	16	0.0	0.0	27	74	27	74	0.0	0.0
R1/444	W1/444		23	69	23	69	0.0	0.0						
R1/444	W2/444		20	57	20	57	0.0	0.0						
R1/444	W3/444		23	76	23	76	0.0	0.0						
R1/444	W4/444		23	63	23	63	0.0	0.0						
R1/444	W5/444		9	36	9	36	0.0	0.0						
R1/444	W6/444		2	14	2	14	0.0	0.0						
R1/444	W7/444		0	2	0	2	-	0.0						
R1/444	W8/444		2	12	2	12	0.0	0.0	26	82	26	82	0.0	0.0

Sun Hours on Ground Assessment

Centre Point
Project No: 4622

March 27, 2013

DAYLIGHT+SOLAR DESIGN

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Client	Almacantar
Architect	Rick Mathers Architects
Project Title	Centre Point
Project Number	4622
Report Title	Sun Hours on Ground Assessment
Dated	March 27, 2013

Written by	Alex Buckley
Checked by	
Type	Interim

Revisions		Date:	Notes:	Signed:
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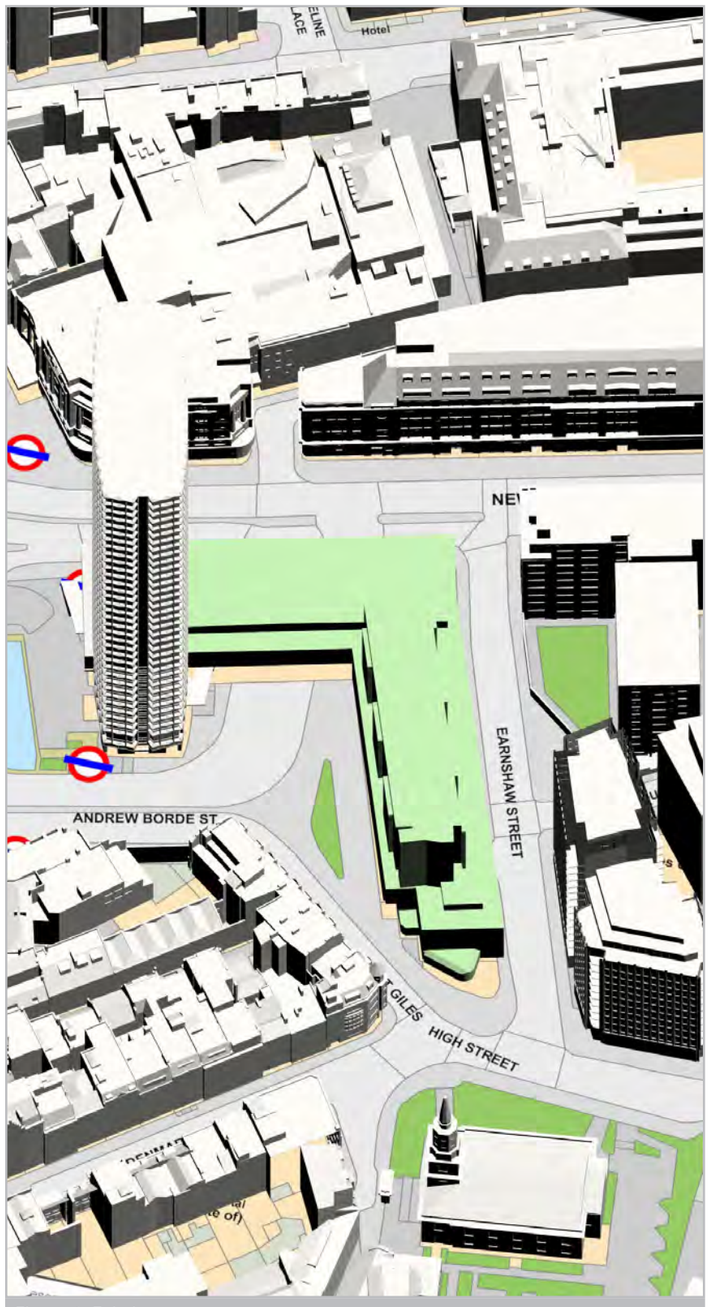

Figure 1: Existing

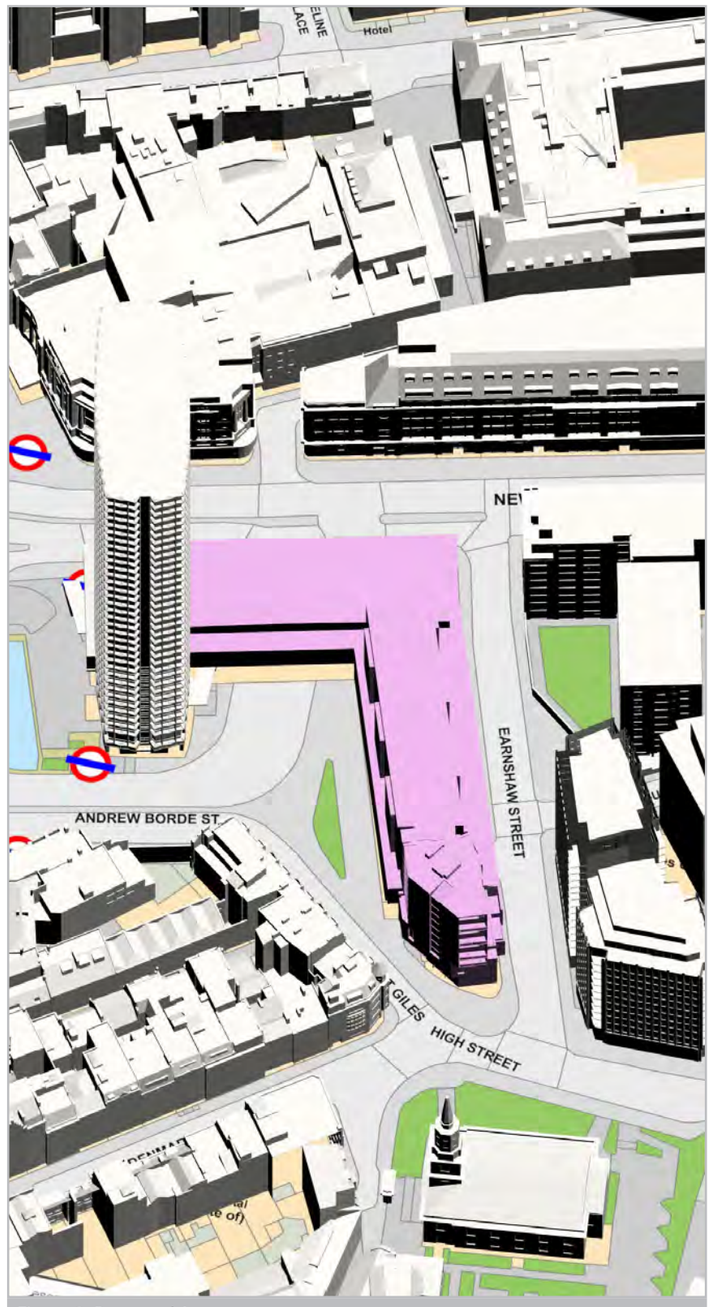

Figure 2: Proposed A

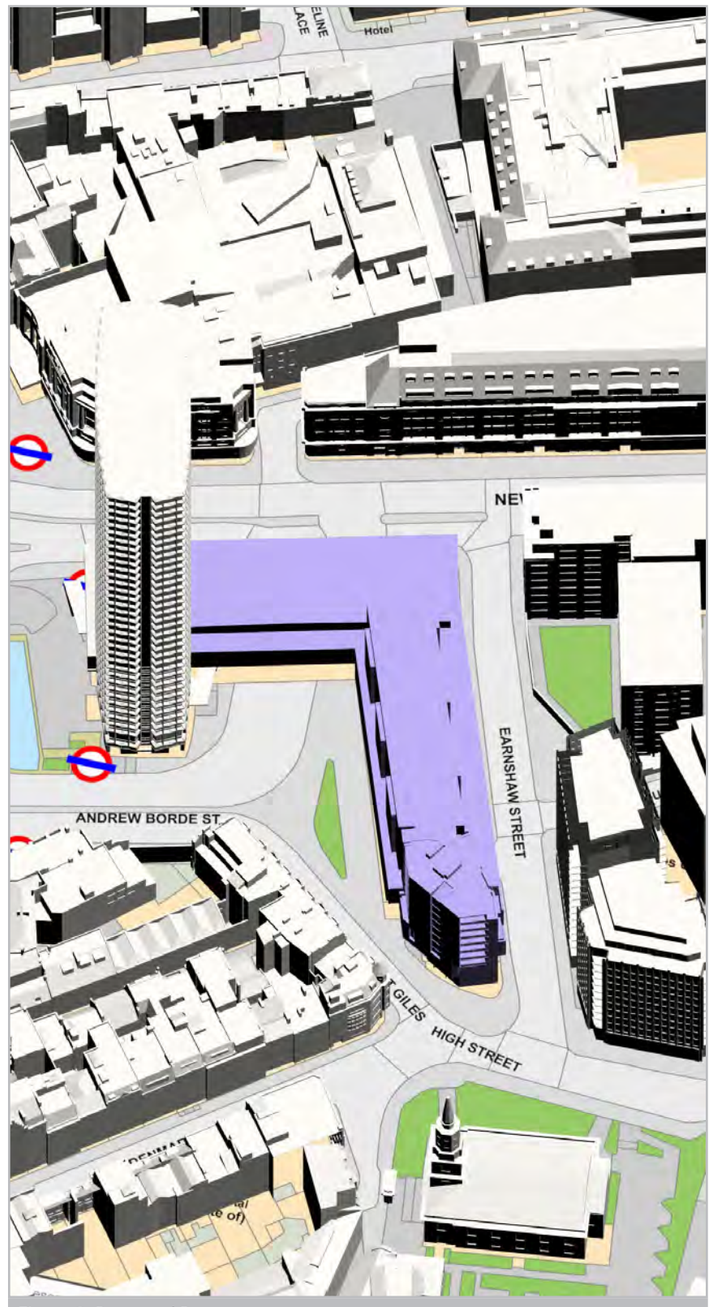

Figure 3: Proposed B

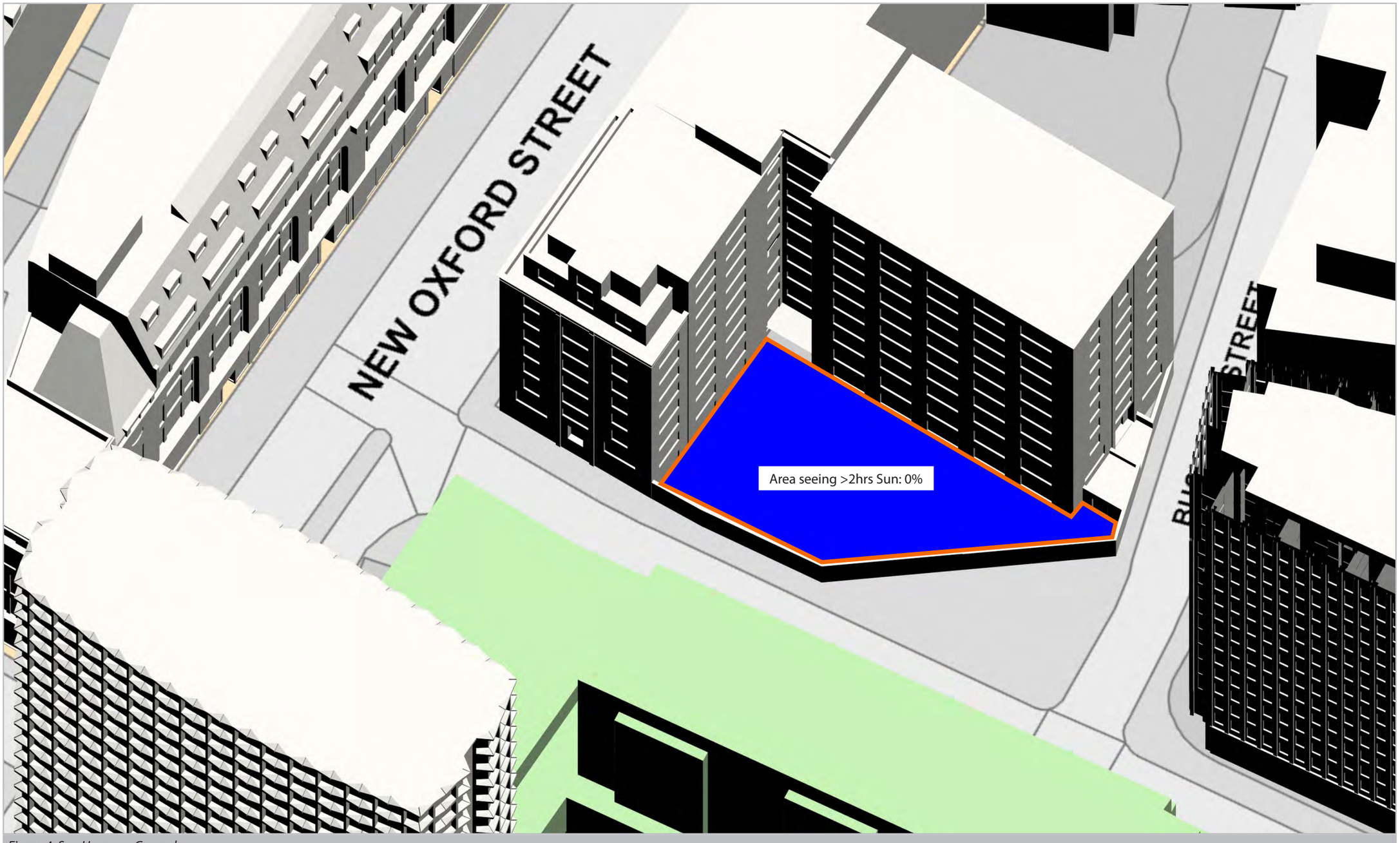

Figure 4: Sun Hours on Ground

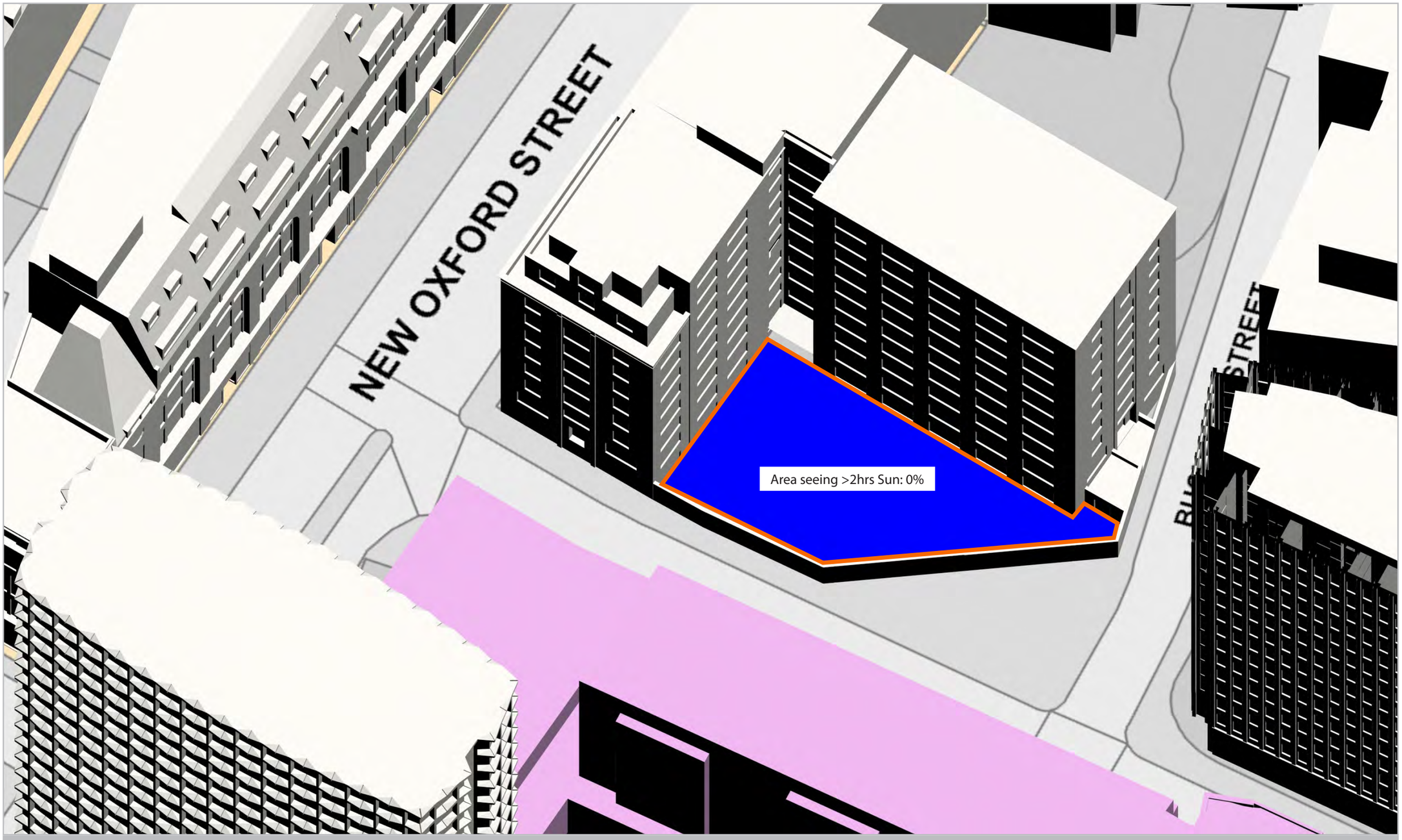

Figure 5: Sun Hours on Ground

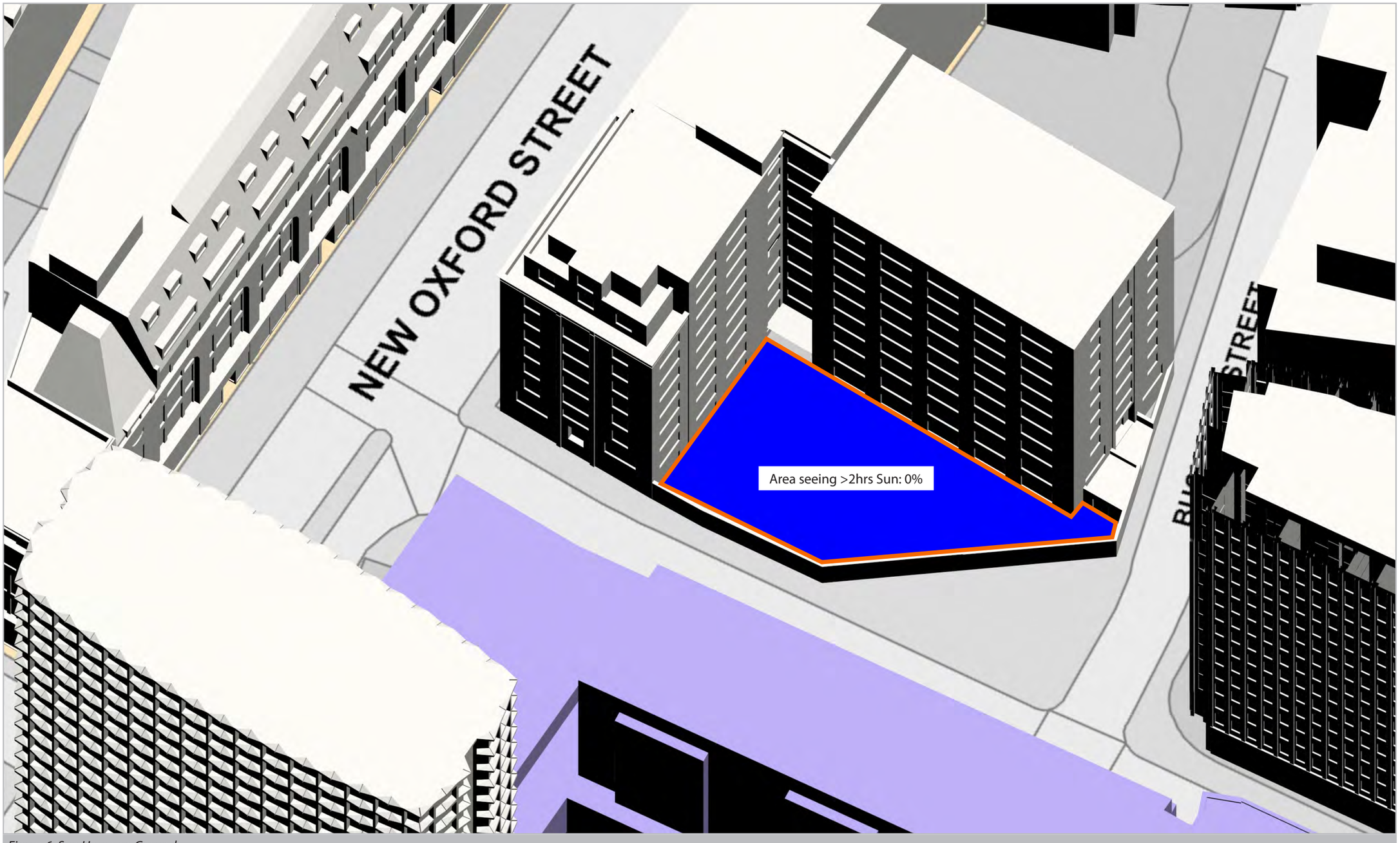

Figure 6: Sun Hours on Ground

Transient Overshadowing Assessment

Centre Point
Project No: 4622

March 27, 2013

DAYLIGHT AND SOLAR DESIGN

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Client	Almacantar
Architect	Rick Mather Architects
Project Title	Centre Point
Project Number	4622
Report Title	Transient Overshadowing Assessment
Dated	March 27, 2013

Written by	AB
Checked by	
Type	Issue

Revisions		Date:	Notes:	Signed:
	--	--/--/--	--	--

4622 - Centre Point
Transient Overshadowing Assessment

Transient Overshadowing Assessment - 21st March

Sources of information:

- Rel10_4622

Issue No: IS3-4622

Page No: 3

Date: March 27, 2013

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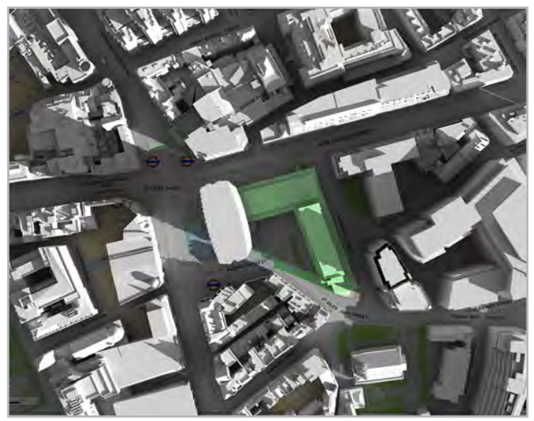
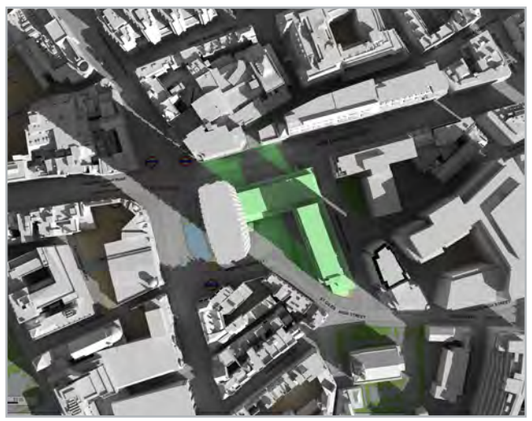
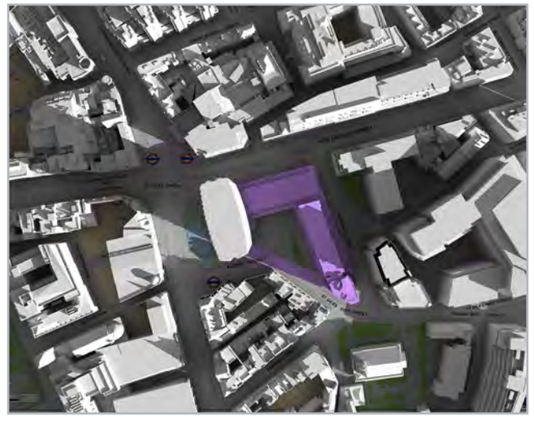
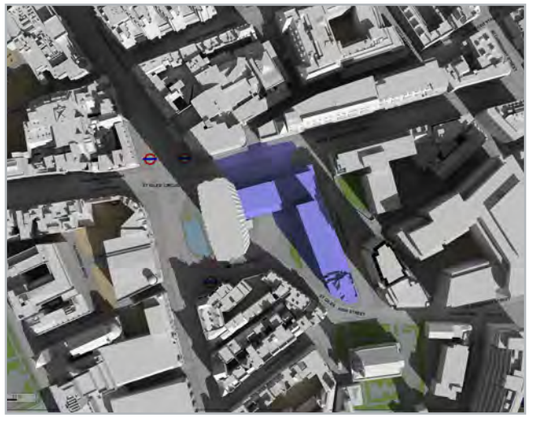
Existing				
Proposed B A				
Proposed B				

4622 - Centre Point
Transient Overshadowing Assessment

Transient Overshadowing Assessment - 21st March

Sources of information:

- Rel10_4622

Issue No: IS3-4622

Page No: 4

Date: March 27, 2013

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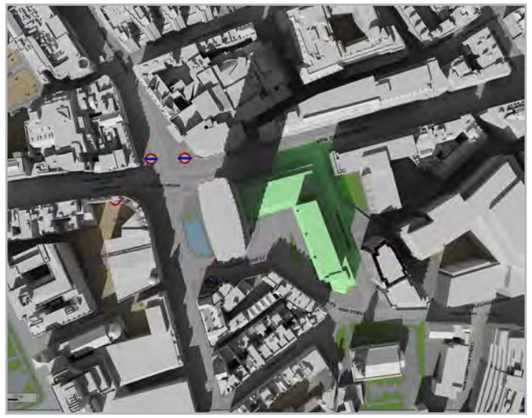
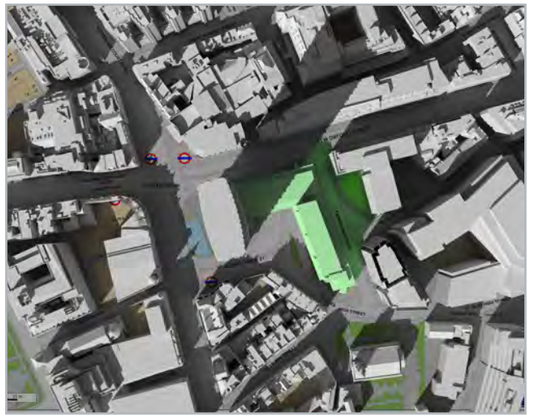
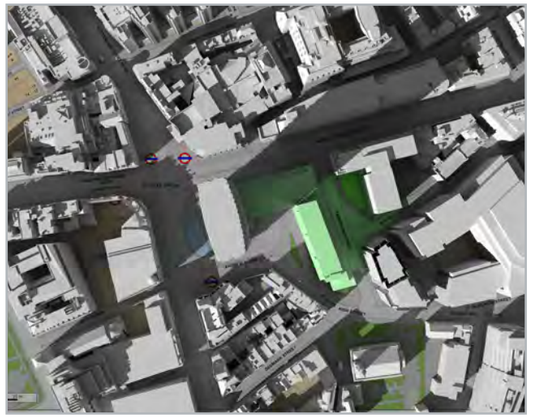
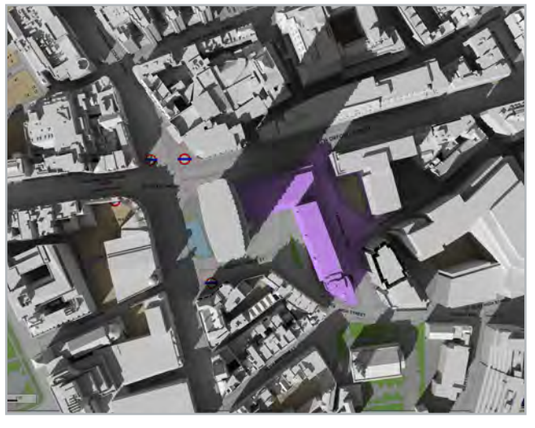
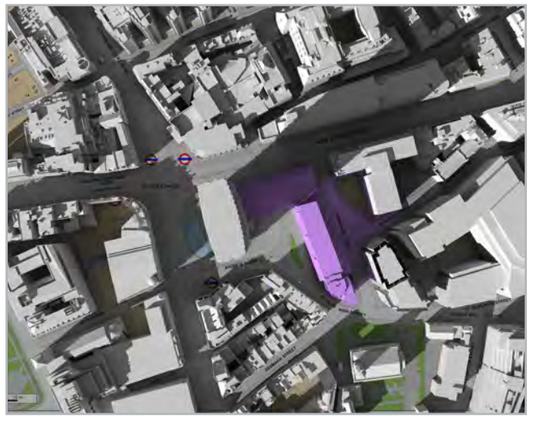
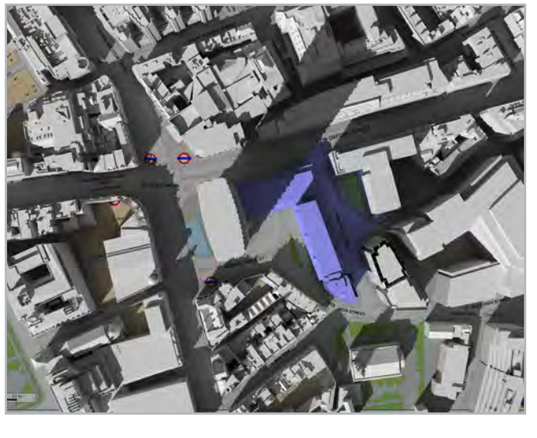
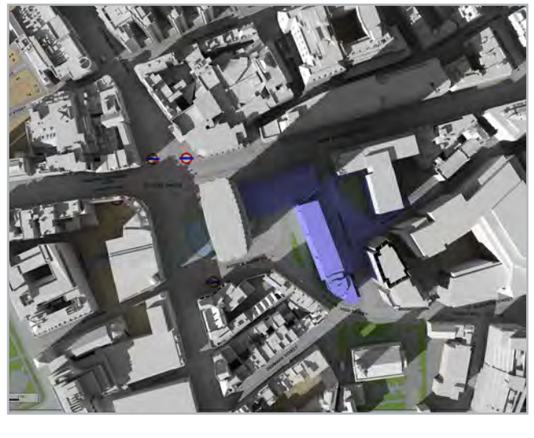
Existing				
Proposed B A				
Proposed B				

Transient Overshadowing Assessment - 21st March

Sources of information:

- Rel10_4622

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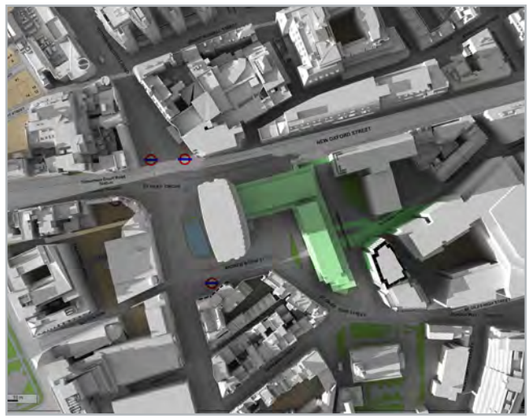
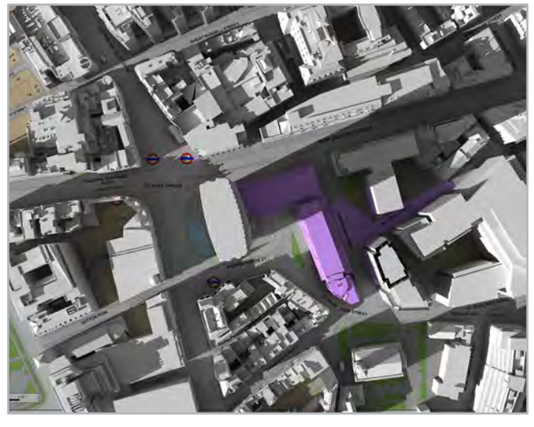
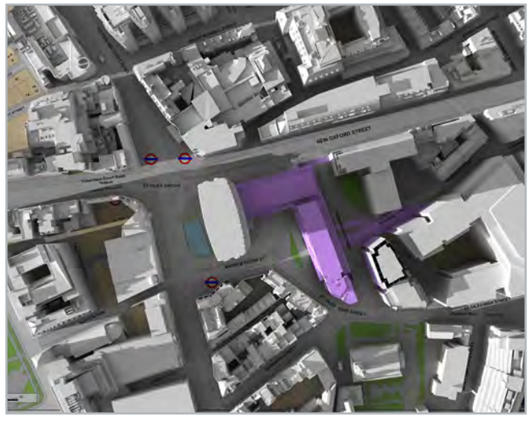
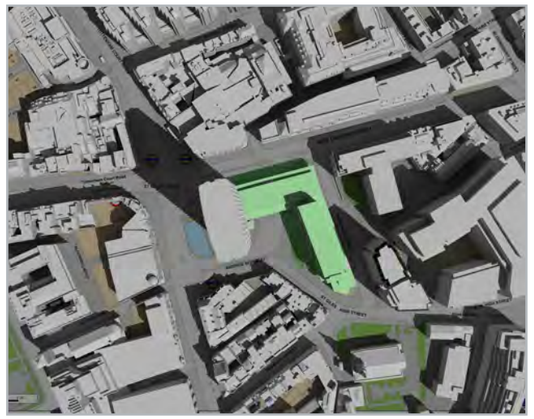
Existing		
Proposed B A		
Proposed B		

09:00 BST | 10:00 BST | 11:00 BST | 12:00 BST

Existing



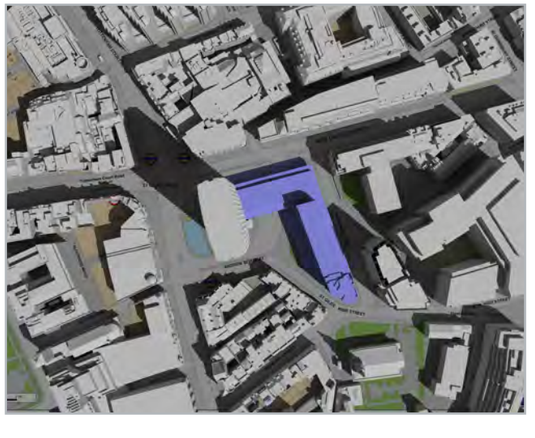



Proposed B A




Proposed B



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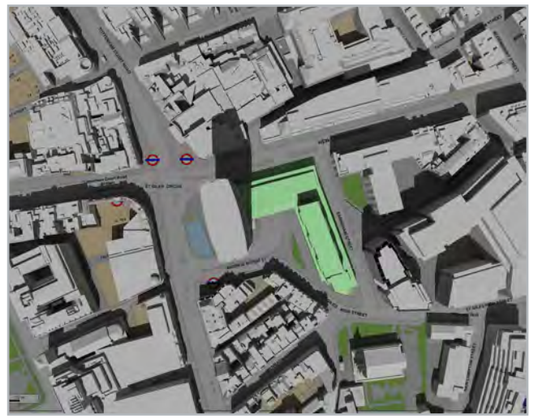
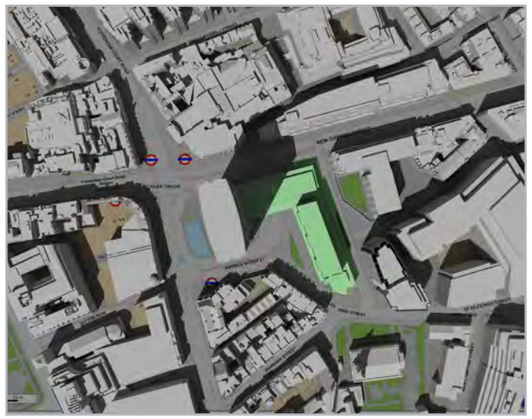
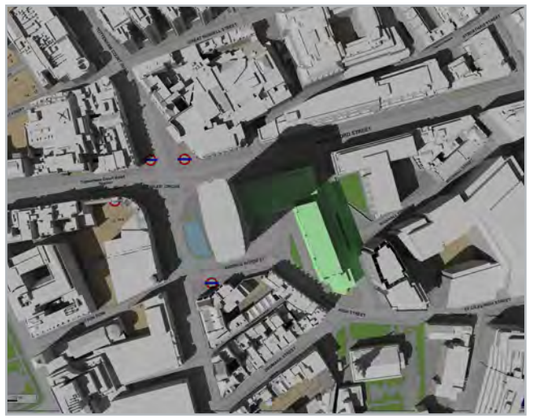
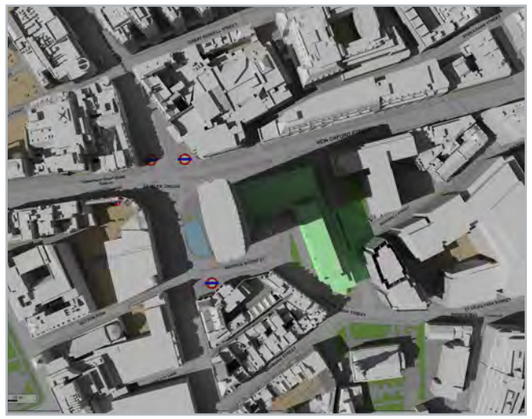
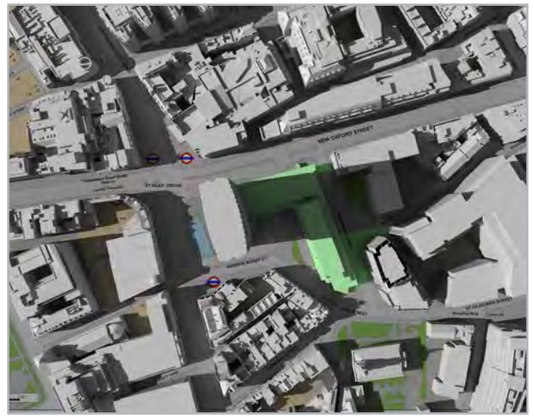
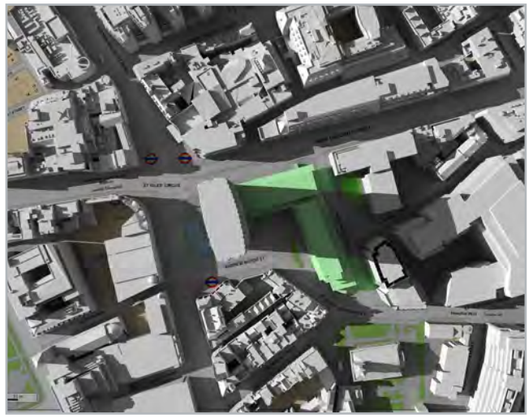
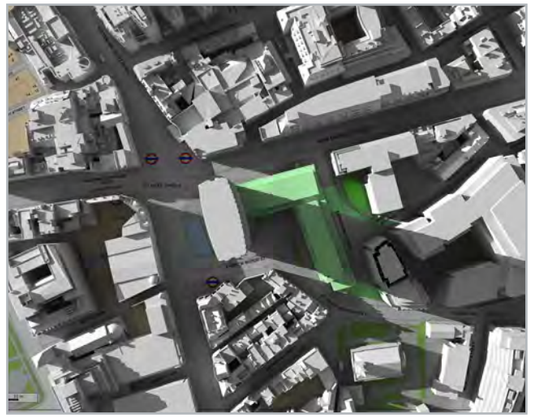
Existing				
Proposed B A				
Proposed B				

17:00 BST | 18:00 BST | 19:00 BST

Existing

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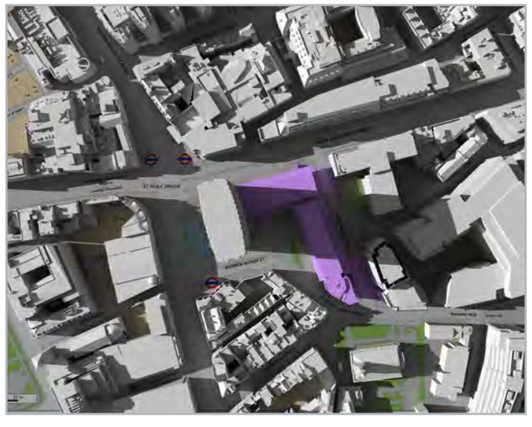
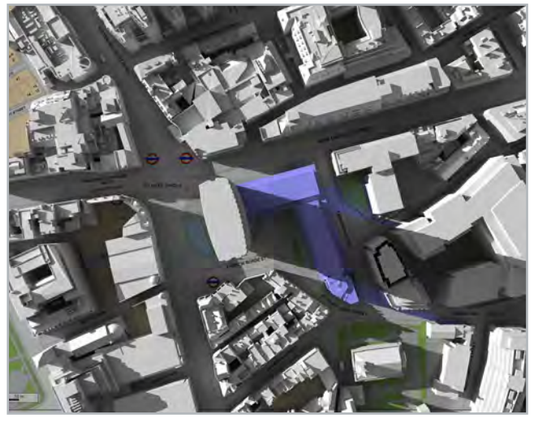



Proposed B





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Existing

Proposed B A

Proposed B

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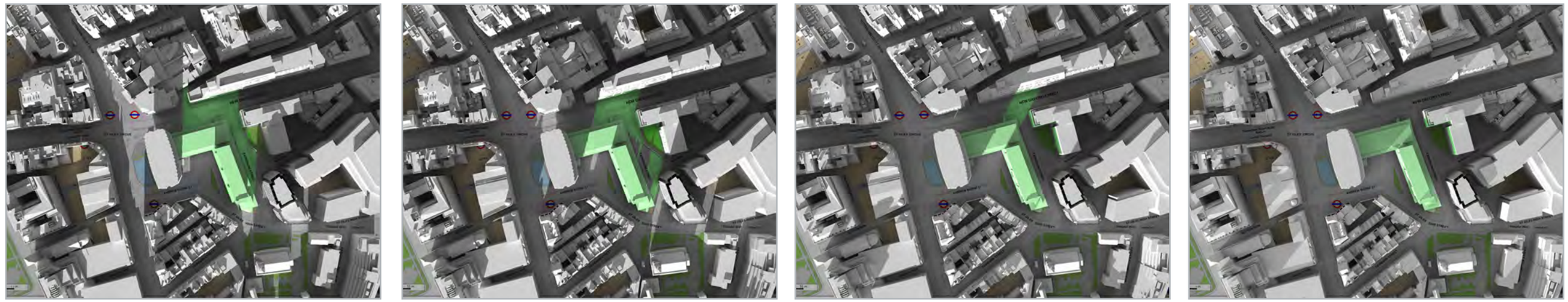

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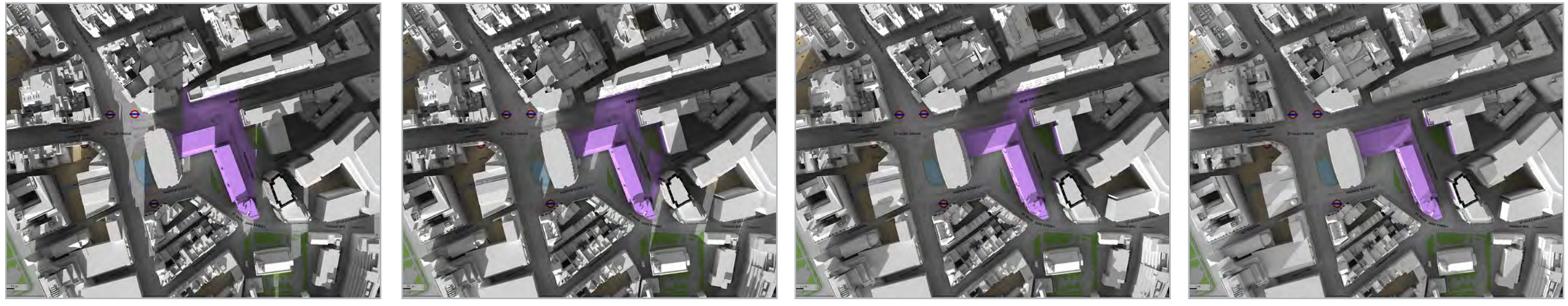
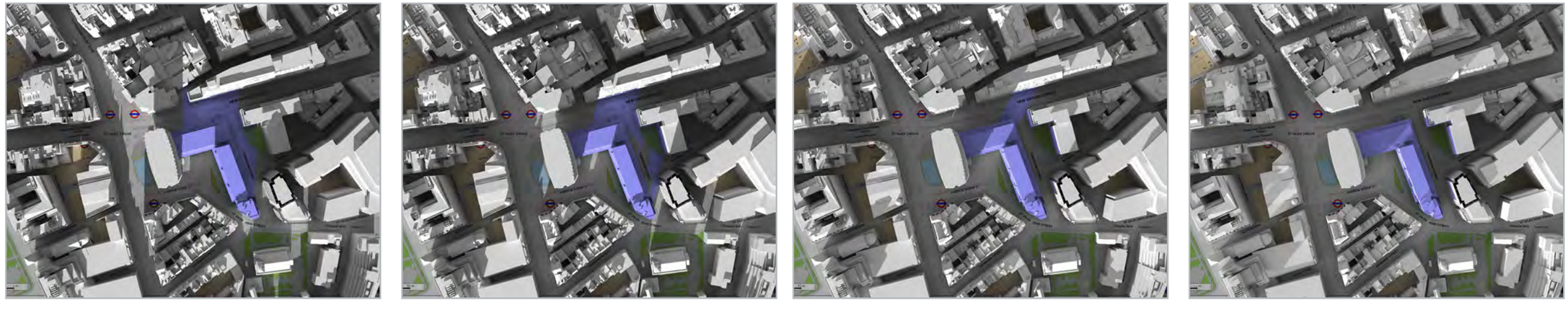


Proposed B



Reflected Solar Glare Report

Centre Point
Project No: 4622

May 25, 2012

DAYLIGHT+SOLAR DESIGN

gia

Client	Almacantar
Architect	Rick Mathers Architects
Project Title	Centre Point
Project Number	4622
Report Title	Reflected Solar Glare Report
Dated	May 25, 2012

Written by	Maddalena Liverani
Checked by	AB
Type	Planning

Revisions		Date:	Notes:	Signed:
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1. Executive Summary

The aim of this report is to highlight any possible additional instances of Reflected Solar Glare caused by the proposed scheme when compared to the existing building.

Both the existing and proposed scenarios have therefore been assessed, the difference between the buildings being that the proposed building sees slightly larger windows than the existing.

Possible occurrences of Reflected Solar Glare have been assessed from potentially sensitive views around major junctions surrounding the scheme. The views are located at the minimum stopping distance from the junction and at the average driver's eye height.

The assessments undertaken have shown that the proposed building will not cause any instances of Reflected Solar Glare in addition to those already present in the existing scenario.

We therefore find that the proposed scenario is considered acceptable in terms of Reflected Solar Glare.

2. Introduction and Objective

GIA has been instructed to provide a report upon the potential impact of Reflected Solar Glare which may be caused by the Proposed Scenario prepared by Rick Mathers Architects. The assessment will consider the possible impact upon sensitive transport arteries surrounding and facing the proposal. These may include: signalled road intersections, pedestrian crossings, non signalled road junctions and railway signals.

GIA was specifically instructed to carry out the following:

- To create a 3D computer model of the proposal based upon Rick Mathers Architects.
- Carry out a solar glare assessment using the methodologies set out in section 4 of this report.
- Prepare a report setting out the analysis and our findings and recommendations.

3. Guidelines

The CIE 146:2002 Collection on glare states:

"Disability glare is glare that impairs vision (CIE, 1987). It is caused by scattering of light inside the eye [...]. The veiling luminance of scattered light will have a significant effect on visibility when intense light sources are present in the peripheral visual field and the contrast of objects to be seen is low. "

"Disability glare is most often of importance at night when contrast sensitivity is low and there may well be one or more bright light sources near to the line of sight, such as car headlights, streetlights or floodlights. But even in daylight conditions disability glare may be of practical significance: think of traffic lights when the sun is close to them, or the difficulty viewing paintings hanging next to windows."

"The magnitude of the veiling luminance depends on the intensity and distance of the glare source which together determine the relevant parameter E_{glare}, the illuminance at the eye caused by the glare source, and the angle between the glare source and the line of sight Q."

"Many investigators (see Vos, 1984) have determined L_{veil} / E_{glare} as a function of Q in various parts of the angular domain, using photometric techniques."

Glare instances are exacerbated with the effects of age and eye pigmentation which can now be accounted for with more complex formulae. These extremes bear also a strong dependency from the angle determined by the instance of glare in respects of the viewer line of sight.

This is accounted for, amongst age dependency and eye pigmentation, in three separate formulae each valid within their angular domain. These, based upon empirical photometric studies, describe the influence of the angular function with the use of the power of the angle Q, respectively

- Q^3 for angles between 0.1° and 1°,
- Q^2 for angles between 1° and 30° and
- Q for angles beyond 30°.

We can therefore state that the closer the instance of glare to the line of sight of the viewer the worse the veiling effect becomes.

The Building Research Establishment (BRE) have set out in their handbook '*Site Layout Planning for Daylight and Sunlight a Guide to Good Practice*' (2011) and their Information Paper *IP 387*, a methodology for the measurement of the occurrence and duration of Reflected Disability Glare, which might be caused by proposed buildings. IP 387 states:

"Glare or dazzle can occur when sunlight is reflected from a glazed facade. For vertical facades this problem usually occurs only when the sun is low in the sky; but some types of modern design incorporate sloping glazed facades which can, under certain circumstances, reflect unwanted high altitude sunlight into the eyes of motorists, pedestrians and people in nearby buildings."

This document also suggests that highly reflective glass coating can increase the risk of reflected solar dazzle, especially in combination with sloping facades.

Unfortunately this document does not provide detailed advice on how to determine the severity of a potential instance of glare based on its duration and it will be the planners responsibility to deduce the level of risk related to the particular instance assessed.

4. Methodology

The methodology described below is not aimed at addressing the intensity of an instance of reflected solar glare, but its occurrence and duration throughout the year and the location of this occurrence in respect of a driver's line of sight.

This will inform the necessity of implementing mitigations at either early or detailed design stage.

For this purpose the glazed facade of the proposed development is assumed to have the same properties of a mirror i.e. it is fully reflective and all of its reflected component is specular.

The potential for reflected solar glare or dazzle from the glazed or reflective façades of the development are assessed using specialist lighting software.

Potentially sensitive Views around the site are selected. These Views representing locations where reflected solar glare may cause adverse impacts to those travelling towards the development, such as road users or train drivers. The Views are generally located at the minimum stopping distance and at the driver's eye height. The focal point is a relevant traffic element, such as signals or incoming traffic.

The stopping distance is calculated as the combination of thinking and breaking distances $D_{total} = D_{thinking} + D_{breaking} = V*T + V^2/(2\mu*g)$, where each component is:

- V = Relevant vehicle speed, typically the road speed limit.
- T = Thinking time (0.67 sec)
- μ = Breaking effort (considered 0.65 for cars, 0.5 for buses and 0.031 for trains)
- g = Gravity acceleration.

The height of the View is considered to be 1.5m for cars, 2.0m for busses and 2.5m for trains.

I.e. A View for car driving at 30mph would be placed at 23m (see fig.1) from a traffic light and at 1.5m above the ground.

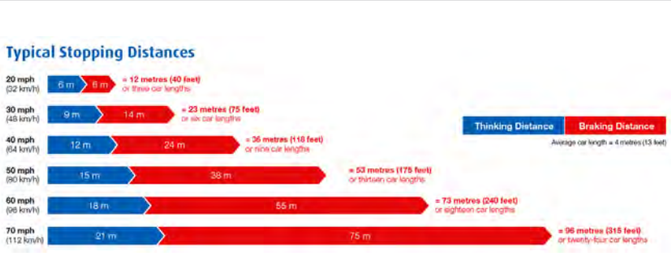

Figure 1: Typical car stopping distances for various speed limits

Field of view

"The field of view (also field of vision) is the angular extent of the observable world that is seen at any given moment."

"Different animals have different fields of view, depending on the placement of the eyes. Humans have an almost 180-degree forward-facing field of view[...]."

(http://en.wikipedia.org/wiki/Field_of_view)

"The normal human visual field extends to approximately 60 degrees nasally (toward the nose, or inward) in each eye, to 100 degrees temporally (away from the nose, or outwards), and approximately 60 degrees above and 75 below the horizontal meridian. In the United Kingdom, the minimum field requirement for driving is 60 degrees either side of the vertical meridian, and 20 degrees above and below horizontal. The macula corresponds to the central 13 degrees of the visual field; the fovea to the central 3 degrees."

(http://en.wikipedia.org/wiki/Visual_field)

"The fovea centralis, also generally known as the fovea, is a part of the eye, located in the center of the macula region of the retina. The fovea is responsible for sharp central vision (also called foveal vision), which is necessary in humans for reading, watching television or movies, driving, and any activity where visual detail is of primary importance."

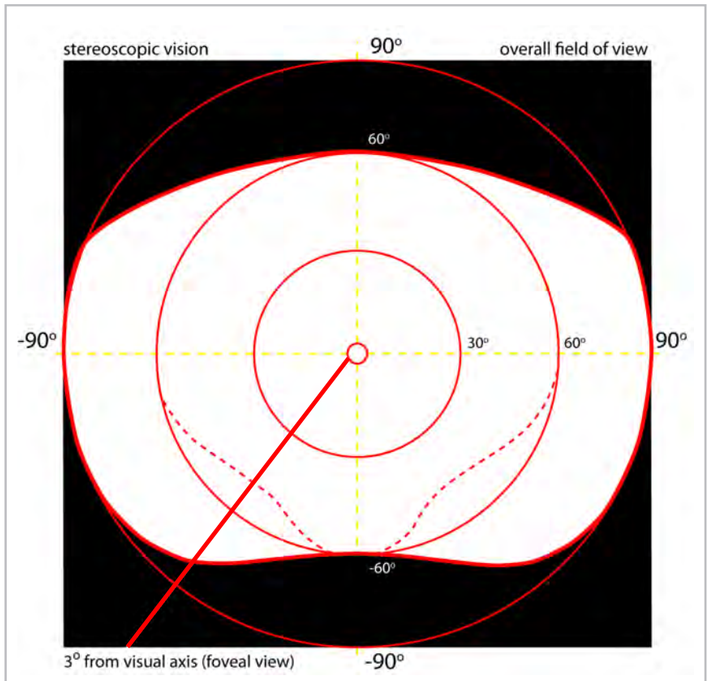

Figure 2: Modified typical human field of view

(http://en.wikipedia.org/wiki/Fovea_centralis_in_macula)

4.1. Image Analysis

The assessment shows the path of the sun for the entire year around the development. Two computer generated angular images are produced for each selected View, indicating the area which sees the reflection of the sunpath at any point during the year. A modified diagram portraying a standardised extent of human vision (figure 2) is then overlaid onto the image.

The diagram highlights the degrees of vision corresponding to the foveal view with a red circle of 3° of angle in order to identify the area most sensitive to reflected solar glare.

Another red circle represents the incidence of the 30° radius of our typical field of view in order to identify a secondary area of sensitivity to potential reflected glare instances.

As stated in the CIE 146:2002 occurrences at angles beyond 30° would be of little significance in most situations, but may be relevant in exceptional circumstances. When seated in a driving seat of a typical car, for example, the limits of the windscreen would generally obstruct the driver's view at angles beyond 30° from the line of sight.

4.2. Limitations

The assessment's results depict sunlight reflected off the building's facade, shown as coloured areas, as well as the sun's path.

The methodology described above is not suitable to quantify the intensity of reflected solar glare. Wherever the potential for reflected solar glare is identified it should be assumed that its intensity is sufficient to cause nuisance and thus mitigating measures ought to be investigated.

Although great care is taken in identifying typical Views around the new development this does not guarantee that there are no further sensitive locations where reflected solar glare could present a particular risk. This assessment is based on the assumption that in an urban environment moving traffic represents the biggest risk factor and so Views and focus points are selected accordingly.

For practical reasons the area of the assessment is limited to the vicinity of a new development. The occurrence of reflected solar glare at greater distances is not subject of this assessment.

IMPORTANT: The hours shown in the diagrams and described in the text reflect solar time and therefore do not take Daylight Saving Hours into account.

5. Conclusion

5.1. Conclusions on Reflected Solar Glare

The aim of this report is to highlight any possible additional instances of Reflected Solar Glare caused by the proposed scheme when compared to the existing building.

Both the existing and proposed scenarios have therefore been assessed, the difference between the buildings being that the proposed building sees slightly larger windows than the existing.

Possible occurrences of Reflected Solar Glare have been assessed from potentially sensitive views around major junctions surrounding the scheme. The views are located at the minimum stopping distance from the junction and at the average driver's eye height of 1.5 m above the ground.

Further detail on the location of the views can be seen in figure 3 of this report.

5.1.1. View 1

No significant difference between the existing and the proposed scenarios can be seen from this view with regards to Reflected Solar Glare.

Possible instances of Reflected Solar Glare are visible from View 1 in both scenarios within 30 degrees of the driver's line of sight, occurring between 14:00 and 17:00 GMT from late August until late November.

Also in both scenarios, additional instances of possible glare can be seen outside 30 degrees of the driver's line of sight but, as stated in the CIE 146:2002, these will be of little significance in the majority of situations.

5.1.2. View 2

No significant difference between the existing and the proposed scenarios can be seen from this view with regards to Reflected Solar Glare.

The minor instances of Reflected Solar Glare visible from View 2 within 30 degrees of the driver's line of sight are visible in both scenarios and occur between 13:00 and 15:00 GMT from November until late December.

The instances visible from this viewpoint are very minor as the window frames hide much of the glazing from the driver.

5.1.3. View 3

No significant difference between the existing and the proposed scenarios can be seen from this view with regards to Reflected Solar Glare.

In both scenarios, possible instances of Reflected Solar Glare are visible from View 3 within 30 degrees of the driver's line of sight, occurring between 5:00 and 8:00 GMT from late June until late August.

Also in both scenarios, additional instances of possible glare can be seen outside 30 degrees of the driver's line of sight but, as stated in the CIE 146:2002, these will be of little significance in the majority of situations.

5.1.4. View 4

No significant difference between the existing and the proposed scenarios can be seen from this view with regards to Reflected Solar Glare.

In both scenarios, possible instances of Reflected Solar Glare are visible from View 4 in both scenarios amd within 30 degrees of the driver's line of sight, occurring between 7:00 and 12:00 GMT from October until late December.

Also in both scenarios, additional instances of possible glare can be seen outside 30 degrees of the driver's line of sight but, as stated in the CIE 146:2002, these will be of little significance in the majority of situations.

5.1.5. View 5

No significant difference between the existing and the proposed scenarios can be seen from this view with regards to Reflected Solar Glare.

Possible instances of reflected Solar Glare are visible in both scenarios from View 5 within 30 degrees of the driver's line of sight, occurring between 7:00 and 12:00 GMT from October to late December.

Also in both scenarios, additional instances of possible glare can be seen outside 30 degrees of the driver's line of sight but, as stated in the CIE 146:2002, these will be of little significance in the majority of situations.

5.2. Summary

The assessments undertaken have shown that the proposed building will not cause any instances of Reflected Solar Glare in addition to those already present in the existing scenario.

We therefore find that the proposed scenario is considered acceptable in terms of Reflected Solar Glare.

Figure 3: Overview