

Planning Application for the Aylesbury Estate Regeneration

## Plot 18 Reserved Matters <br> Application

# Daylight, Sunlight and Overshadowing Assessment 

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### 1.0 Executive Summary

HTA Design LLP has been appointed by Notting Hill Housing to prepare a Daylight and Sunlight Assessment to support the submission of a Reserved matters Planning Application for the construction of Plot 18.

Plot 18 is located within Phase 2a of the Aylesbury Regeneration Scheme. The development comprises two buildings arranged around a public open space.

The North Block is designed by HTA Design LLP Architects and the South Block is design by Duggan Morris Architects. The North Block (Subplot 18A) accommodates commercial uses, a community Facility and 122 new homes. The South Building (Plot 18B) accommodates a Health Centre and the Early Years facility.

The main scope of this study is to assess the impact of the new development on the existing surrounding properties and open spaces in terms of daylight and sunlight as well as the performance of the new residential units.

To ensure that this assessment can be appropriately evaluated against Southwark Council's planning policy, the analysis has been carried out in accordance with the following guidance documents:

- Building Research Establishment (BRE) Site Layout Planning for Sunlight and Daylight: A Guide to Good Practice (2011)
- British Standard BS8206-2:2008 Lighting for buildings-Part 2: Code of Practice for Daylighting

The Daylight and Sunlight Assessment has been carried out for the relevant windows of the residential properties located immediately adjacent to the proposed new development. These properties could be impacted by the new buildings.

For sunlight, in accordance with the BRE Guide, only windows facing within 90 degrees of due south need to be assessed, therefore not all the buildings directly facing the new development have been tested in the sunlight assessment.

No internal survey has been undertaken for the residential properties surrounding Plot 18. For this reason, the Daylight and Sunlight Assessment has been carried out on the assumption that the windows affected will be of the most sensitive habitable use. Therefore, the results consider a robust worst case scenario.

The results of the impact assessment show that most of the existing windows will have a negligible impact.

The proposed scheme has been carefully designed to provide future occupants with adequate daylight and sunlight levels throughout the year, paying attention not to impact negatively on the natural daylight received by the neighbouring buildings.

The following tables summarise the results of the analysis.

The existing open spaces have also been assessed against relevant BRE sunlight criteria. Results show that only one space will not achieve the current sunlight levels, given the presence of the South Block. Careful attention has been given to this space minimizing the impact as explained in the following sections of this report.

Aylesbury Square has been analysed to guide the landscape architects in their decisions.


### 1.0 Executive Summary

VERTICAL SKY COMPONENT

|  | Analysed <br> rooms | Number of passing room |  | Number of failing rooms |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Building 1 | 28 | 28 | $100 \%$ | 0 | $0 \%$ |
| Building 2 | 15 | 15 | $100 \%$ | 0 | $0 \%$ |
| Building 3 | 10 | 10 | $100 \%$ | 0 | $0 \%$ |
| Building 4 | 15 | 7 | $47 \%$ | 8 | $53 \%$ |
| Building 5 | 20 | 20 | $100 \%$ | 0 | $0 \%$ |
| Building 6 | 6 | 6 | $100 \%$ | 0 | $0 \%$ |
| Building 7 | 30 | 10 | $33 \%$ | 20 | $67 \%$ |
| Building 8 | 295 | 224 | $76 \%$ | 71 | $24 \%$ |
| Building 9 | 67 | 58 | $87 \%$ | 9 | $13 \%$ |
|  | 486 | 378 | $\mathbf{7 8 \%}$ | $\mathbf{1 0 8}$ | $\mathbf{2 2 \%}$ |

Table 1: Results of the Impact of Plot 18 on the surrounding existing properties - Daylight Assessment

## ANNUAL PERCENTAGE SUNLIGHT HOURS

|  | Analysed <br> rooms | Number of passing room |  | Number of failing rooms |  |
| :--- | :---: | :---: | :---: | :---: | :---: |
| Building 2 | 8 | 8 | $100 \%$ | 0 | $0 \%$ |
| Building 3 | 8 | 8 | $100 \%$ | 0 | $0 \%$ |
| Building 5 | 14 | 14 | $100 \%$ | 0 | $0 \%$ |
| Building 7 | 30 | 16 | $53 \%$ | 14 | $47 \%$ |
| Building 8 | 295 | 225 | $76 \%$ | 70 | $24 \%$ |
|  | $\mathbf{3 5 5}$ | $\mathbf{2 7 1}$ | $\mathbf{7 6 \%}$ | $\mathbf{8 4}$ | $\mathbf{2 4 \%}$ |

Table 2: Results of the Impact of Plot 18 on the surrounding existing properties - Sunlight Assessment

AVERAGE DAYLIGHT FACTOR

|  | Analysed rooms | Number of passing room |  | Number of failing rooms |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Block 1 | 162 | 156 | 96\% | 6 | 4\% |
| Block 2 | 82 | 71 | 87\% | 11 | 13\% |
| Block 3 | 80 | 70 | 88\% | 10 | 13\% |
|  | 324 | 297 | 92\% | 27 | 8\% |
| NO-SKY LINE |  |  |  |  |  |
| Block 1 | 162 | 156 | 96\% | 6 | 4\% |
| Block 2 | 82 | 70 | 85\% | 12 | 15\% |
| Block 3 | 80 | 65 | 81\% | 15 | 19\% |
|  | 324 |  | 90\% |  | 10\% |

Table 3: Results of the Daylight Assessment of Plot 18

|  | Analysed <br> rooms | Number of passing room |  | Number of failing rooms |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| Block 1 | 56 | 56 | $100 \%$ | 0 | $0 \%$ |
| Block 2 | 24 | 24 | $100 \%$ | 0 | $0 \%$ |
| Block 3 | 37 | 37 | $100 \%$ | 0 | $0 \%$ |
|  | 117 | 117 | $100 \%$ | 0 | $0 \%$ |

[^0]

Figure 2: Visualisation of Plot 18

### 2.0 Introduction and Context

The Aylesbury Regeneration Area is situated in the London Borough of Southwark, south of Elephant and Castle and immediately east of Walworth Road.

The Aylesbury Area Action Plan (2010), provides the planning policy framework for the redevelopment of the entire 22.1 hectare area, to replace the existing units. Plot 18 includes residential, community and retail facilities to replace and expand the existing provision.
Plot 18 is located within Phase 2a of the Aylesbury Estate Regeneration Scheme. The application is for 122 new homes, a Health Centre, an Early Years Facility, a Community Facility and commercial units. The development comprises two buildings arranged around public open space.

It is critical that the new regeneration area includes a neighbourhood centre, which is complementary to the Walworth Road and also East Street market. The development of Plot 18 will establish an identity that defines this as a local destination and landmark of the area.

The North Block is designed by HTA Design LLP Architects and the South Building is designed by Duggan Morris Architects. The North Block (Subplot 18a) accommodates Commercial Uses, a Community Facility and 122 new homes. The South Block (Subplot 18b) accommodates a Health Centre and the Early Years Facility.


Figure 3: Existing site location

### 3.0 Design intent

The design of Plot 18 is in accordance with the requirements set out in the Aylesbury Area Action Plan (AAAP).
Specific references in the AAAP to requirements regarding the quality of the development with particular reference to daylight and sunlight are as follows.

## A6.4.35 Skyline

A varied skyline can be achieved through the following:

- Varying the height of each building plot - there should be a minimum change in height of 1.5 metres for every 30 metres of roofline.
- Different expressions of roofs and tops of buildings by using varied materials and finishes.
- The introduction of projections on the building and roofline.
- Stepping back the façade at upper levels of the building. This can reduce tunnel effects, improve natural lighting at street level and provide roof terrace amenity space.


## Section 3.2.3

'Higher residential densities near parks and open spaces will give greater opportunities for more residents to live close to, or enjoy a view over, open space. They will generate the value required to support the viability of the whole development'

## A6.6 Blocks and Buildings

'The location of balconies must however be balanced with the need to provide daylight to lower levels flats and to the street.'


Figure 5: 25 degree test carried out at the beginning of the design process to assess the potential impact on the opposite buildings

The detailed designs of apartments have been tested at early stages in the design process to inform the designers about the performance of the units from a daylight/sunlight prospective. Changes have been made to preliminary designs to improve the performance of typical dwellings wherever possible. The shape and layout of the dwellings is informed by a desire to create high quality living spaces.
The design of Plot 18 has carefully been assessed to minimise any negative impact on the surrounding existing properties, especially for those within the Liverpool Grove Conservation Area.
Initial Daylight and Sunlight façade studies were carried out comparing a variety of options to find out the best solution which was able to minimise the impact of the existing building, but also maximising the light and the view of the sky within the new dwellings.


Figure 4: Daylight façade study - Initial analysis


Figure 6: Sunlight levels on 21st March - Initial analysis

## 2015 Technical Update to the Residential Design Standards (2011)

London Borough of Southwark asks designers to ensure that the proposed development and the neighboring properties receive adequate daylight and sunlight levels. The Council provides guidance through its Supplementary Planning Document: Residential design standards adopted in October 2011, which contains the following policy guidance under section 2.7 Daylight and Sunlight:

### 2.7 Daylight and sunlight

Residential developments should maximise sunlight and daylight, both within the new development and to neighbouring properties. Development should seek to minimise overshadowing or blocking of light to adjoining properties. A lack of daylight can have negative impacts on health as well as making the development gloomy and uninviting.
Maximising sunlight and daylight also helps to make a building energy efficient by reducing the need for electric light and meeting some of the heating requirements through solar gain. The orientation of buildings can maximise passive solar gain to keep buildings warm in winter and cool in summer.
Developments should meet site layout requirements set out in the Building Research Establishment (BRE) Site Layout for Daylight and Sunlight - A Guide to Good Practice (1991).

The Council recommends BRE Guide 'Site Layout Planning for Sunlight and Daylight: A Guide to Good Practice' as the recognised standard against which daylight and sunlight provision within Plot 18 should be assessed.

## Aylesbury Area Action Plan (2010)

The Aylesbury Area Action Plan favours the presence of balconies, but asks the designers to ensure that they are carefully designed to ensure daylight is provided to lower levels.

## A6.6.30 Balconies

Balconies offer an opportunity to modulate and create visual interest on building façades, articulating frontages and providing outdoor amenity space for residents. Balconies also provide more active building frontages by allowing residents to overlook streets and open spaces below, which increases vitality and safety on the streets and helps to develop a sense of place. The location of balconies must however


Figure 7: View of Subplot 18a and Aylesbury Square at night
be balanced with the need to provide daylight to lower levels flats and to the street.

Section A6.8.17 of the document refers to the soft landscape. Trees and plants must take into account the street hierarchy, the need for shade and wind protection, and the need to maintain daylighting into people's homes.

The following section briefly describes the methodology outlined in BRE guidance and highlights all relevant standards against which Plot 18 has been assessed.

### 5.0 Methodology - Assessment criteria

### 5.1 Daylight - Impact of the new buildings on the existing ones

The Daylight and Sunlight Assessment, presented in this report, has been carried out in compliance with the methodology outlined in the Building Research Establishment (BRE) Guide 'Site Layout Planning for Sunlight and Daylight: A Guide to Good Practice (2011)' and the British Standard BS8206-2:2008 Lighting for buildings - Part 2: Code of practice for daylighting.
BRE Guide gives advice on site layout to achieve provision of daylight and sunlight both within buildings and in the open spaces between them. The BRE guide aims to aid designers in considering the relationship between new and existing buildings to ensure that each retains the potential to achieve good daylighting and sunlight levels.
BRE guidelines have been drafted primarily for use with low density suburban developments and should therefore be used flexibly when dealing with dense urban sites and extensions to existing buildings.
The Guide states in the introduction:

> The guide is intended for building designers and their clients, consultants and planning officials. The advice given here is not mandatory and the guide should not be seen as an instrument of planning policy; its aim is to help rather than constrainthe designer. Although it givesnumerical guidelines, these should be interpreted flexibly since natural lighting is only one of many factors in site layout design. In special circumstances the developer or planning authority may wish to use different target values. For example, in a historic city centre, or in an area with modern high rise buildings, a higher degree of obstruction may be unavoidable if new developments are to match the height and proportions of existing buildings.

### 5.1 Daylight - Impact of the new buildings on the existing ones

The design of a new development should safeguard potential for daylight to nearby buildings. Otherwise, obstruction caused by new built sites may make surrounding properties look gloomy and unattractive.
BRE guidelines are intended for use for living areas in adjoining dwellings where daylight is required. The methodology is based on guidelines set out in the 2011 BRE Handbook. The methodology to assess daylight impacts of the properties surrounding the Comprehensive Development is as follows:
Test 1: 25 Degree Line method. This test should only be used where the proposed development is of a reasonably uniform profile and is directly opposite the existing building. For this reason only where this condition is met the 25 degree rule has been applied
and if the new development subtends an angle of less than 25 degrees to the centre of the lowest window of an existing building, then it is unlikely to have a substantial effect on the daylight received by the existing dwelling. For an angle greater than 25 degrees or in the presence of development that has a non uniform profile, a more detailed assessment is needed to calculate the loss of daylight to the existing building.
Test 2: Vertical Sky Component method (VSC). The VSC is a unit of measurement that represents the amount of available daylight from the sky, received at a particular window. It is measured on the outside face of the window. This unit is expressed as a percentage as it is the ratio between the amount of sky visible at the given reference point compared to the amount of light that would be available from a totally unobstructed hemisphere of sky. To put this unit of measurement into perspective, the maximum percentage value for a window with a completely unobstructed view through $90^{\circ}$ in every direction is 40\%.
In order to maintain good levels of daylight the BRE guidance recommend that the VSC of a window should be $27 \%$ or greater. However, the 2011 BRE Handbook makes allowance for different target values in cases where a higher degree of obstruction may be unavoidable such as historic city centres or modern high rise buildings. The guide states that the $27 \%$ value is:
"..purely advisory and different targets may be used on the special requirements of the proposed development or its location."

Where the VSC is greater than $27 \%$, meaning that enough daylight is still reaching the window of the existing building, additional calculations have been carried out further to assess the impact of the Comprehensive Development on the daylight provision at the existing properties.
Test 3: Comparison method. The comparison test considers the VSC results of the baseline condition and the VSC results of the Development in place. The 2011 BRE Handbook states that where the VSC with the Development completed is less than $27 \%$ the comparison with the existing situation should be analyzed and if the VSC is less than 0.8 times its former value, occupants of the existing building will notice a reduction in the amount of daylight. In order to provide an impact assessment on the existing properties the comparison test has been carried out in any case.

### 5.0 Methodology - Assessment criteria

### 5.2 Daylight - Assessment within the new buildings

### 5.2 Daylight - Assessment within the new buildings

The quality and quantity of daylighting in an interior space depends on two main factors: external environment and internal layout. External environment, e.g. obstruction from neighbouring buildings or topographical features has an impact on daylight provision whereas internal layout and windows' size affects daylight distribution within a living area.
Section 2.1 and Appendix C of the BRE guide provide several methods for calculating daylight levels within new developments.
According to the BRE guide and BS8206, only main living areas within a dwelling, i.e. kitchens, living/ dining rooms and bedrooms, should be assessed against the criteria provided, as these are occupied for a long period throughout the day and daylighting is essential for carrying out tasks. Therefore, secondary spaces, e.g. circulation areas, bathrooms and storerooms, are excluded from this study.

## Vertical Sky Component

The Vertical Sky Component (VSC) quantifies the amount of available daylight, received at a particular window and measured on the outer pane of the window. This is the ratio, expressed as a percentage, of the direct illuminance falling on a reference point (usually the centre of the window) to the simultaneous horizontal illuminance under an unobstructed sky (overcast sky conditions). The maximum value of VSC for a completed unobstructed vertical window pane is 40\%.
According to BRE Guide, if VSC as measured at the centre of a window is at least $27 \%$ then the living space is expected to receive good daylight levels.
The VSC, however, is a general measure of potential for daylight in a space that does not take into consideration the function of the space being assessed and should be carried out at early design when rooms' layout is not yet determined and the optimum position of windows is being assessed. Therefore, VSC calculation has been omitted from this study.

## Average Daylight Factor

The most effective way to assess quality and quantity of daylight within a living area is by calculating the Average Daylight Factor (ADF). The ADF, which measures the overall amount of daylight in a space, is the ratio of the average illuminance on the working plane in a room to the illuminance on an unobstructed horizontal surface outdoors, expressed as a percentage.
The ADF takes into account the VSC value, i.e. the amount of daylight received on windows, the size and number of windows, the diffuse visible transmittance of the glazing used, the maintenance factor and the reflectance of the room surfaces. Therefore, it is considered as a more detailed and representative measure of the daylight levels within a living area.
In housing, BS 8206-2 recommends minimum values of ADF of $2 \%$ for kitchens, $1.5 \%$ for living rooms and $1 \%$ for bedrooms.

## Position of the No-Sky line

A measure to assess the distribution of daylight in a space is the percentage of area that lies beyond the no-sky line i.e. the area that receives no direct skylight. This is important as it indicates how good the distribution of daylight is in a room. If more than $20 \%$ of the working plane lies beyond the no-sky line poor daylight levels are expected within the space.
Table 5 summarises the assessment criteria as described in the BRE Guide that should be applied to new developments in order to ensure good daylight levels within the main living areas of residential units.
For the purposes of this study, only the Average Daylight Factor and No-Sky view methods described above have been considered. Contrary to the VSC that measures daylight levels only on the window pane, the ADF is a more complex and representative calculation as it takes into account the angle of visible sky reaching the windows as well as the room layout, use and surface reflectance.
Section 7 of this report provides analysis of the results, which are presented in Appendix C.

| Measure of Interior Daylight | Benchmark | Daylight Criterion |
| :--- | :---: | :--- |
| Vertical Sky Component | $27 \%$ | If VSC is at least $27 \%$ then conventional window design <br> will usually give reasonable results |
| Average Daylight Factor (ADF) | $2.0 \%$ | Minimum value of ADF for kitchens <br>  $1.5 \%$ | | Minimum value of ADF for living rooms |
| :--- |
|  |
| No-Sky View |
|  |

### 5.0 Methodology - Assessment criteria <br> 5.3 Sunlight - Impact of the new buildings on the existing properties

## Sunlight - Impact of the new buildings on the existing properties

The impact of the new development on the sunlight levels received by the neighbouring buildings has been carried out in accordance with the BRE Guide.
The methodology is based on guidelines set out in the 2011 BRE Handbook. Only windows facing $90^{\circ}$ of due south have been considered for this kind of calculation. The methodology to assess sunlight impacts of the properties surrounding the Development is as follows.
APSH and WPSH method. The BRE have produced sunlight templates for London, Manchester and Edinburgh indicating the Annual Probable Sunlight Hours (APSH) for these regions. The London template has been selected for this study which has an APSH of 1,486 hours and a Winter Probable Sunlight Hours of 446 hours. The same VSC reference points are used for the calculation of the APSH and WPSH. It should be considered that sunlight is deemed less important in kitchens and bedrooms. The 2011 BRE Handbook states:

In houses, the main requirement for sunlight is in living rooms, where it is valued at any time of day, but especially in the afternoon.

The 2011 BRE Handbook also states:
..a south facing window will, in general, receive most sunlight, while a north facing one will receive it only on a handful of occasions. East and west facing windows will receive sunlight only at certain times of day.

The BS 8206-2 recommends that for a space to be reasonably sunlit:

- at least one main window wall should face within 900 of due south and
- the centre of at least one window to a main living room should receive $25 \%$ of annual probable sunlight hours, including at least $5 \%$ of annual probable sunlight hours in the winter months between 21 September and 21 March. If a room has multiple windows on the same wall or on adjacent walls, the highest value of APSH should be taken. If a room has two windows on opposite walls, the APSH due to each can be added together.
If the available sunlight hours are below the above thresholds then an additional assessment has been carried out.

Comparison method. The comparison test considers the APSH and WPSH results of the baseline condition and the APSH and WPSH results of the Development in place. The BRE guidance say that if the reduction in sunlight between the baseline condition and the future one results in an APSH and WPSH of at least 0.8 times its former value, then it is considered that the sunlight received is adequate.


Figure 8: View of Subplot 18a - Library entrance

### 5.0 Methodology - Assessment criteria

### 5.4 Sunlight - Assessment within the new buildings

### 5.4 Sunlight - Assessment within the new buildings

Sunlight is valued as it provides dwellings with light and warmth and it also allows for passive heating through solar gains that reduces heating energy consumption. Optimum arrangement of the site to produce the best orientation (within 90o of due south) and reduce overshadowing should be considered in order to take advantage of solar energy during winter time.
According to the BRE Guide, the main requirement for sunlight in housing is in living rooms, whereas in bedrooms and kitchens sunlight is viewed as less important. Therefore, BS 8206-2 recommends that for a space to be reasonably sunlit:

- at least one main window wall should face within 900 of due south and
- the centre of at least one window to a main living room should receive $25 \%$ of annual probable sunlight hours, including at least $5 \%$ of annual probable sunlight hours in the winter months between 21 September and 21 March. If a room has multiple windows on the same wall or on adjacent walls, the highest value of APSH should be taken. If a room has two windows on opposite walls, the APSH due to each can be added together.
The overall sunlighting potential of a large residential development may be initially assessed by counting how many dwellings have a window to a main living room facing south east or west. Site layout design should aim to maximise the number of dwellings with a main living room that meets the above recommendations.
However, according to the BRE Guide, at high-density


Figure 9: Facade detail developments it becomes difficult to avoid some dwellings being seriously obstructed or having a poor orientation. Where prolonged access to sunlight is available, measures to avoid overheating and unwanted glare from the sun should be considered.

### 5.0 Methodology - Assessment criteria 5.5 Overhsadowing - Open spaces

### 5.5.1 Overshadowing - Existing open spaces

The methodology is based on guidelines set out in the 2011 BRE Handbook that states the following:

The availability of sunlight should be checked for all open spaces where it will be required. This would normally include: gardens (usually the main back garden of a house), parks and playing fields, children's playgrounds..

The BRE Guide recommends that for a garden or amenity to appear adequately sunlit throughout the year, at least half of it should receive at least two hours of sunlight on 21 March (Spring Equinox). The Guide suggests that where large buildings are proposed which may affect a number of amenity spaces it is useful to plot a shadow plan to show the location of shadows at different times of the day on 21 March. For this date the shadow range calculation has been carried out at hourly intervals throughout the day from 7:00 a.m. to 5:00 p.m.
The methodology to assess the sunlight impact of the amenity spaces is as follows:
Test 1: \% of area which receives sun: The path of the sun is tracked and it is compared with the presence of the abstractions within the analyzed site. Sunlight provision is considered adequate if at least $50 \%$ of the amenity space receives two hours of sunlight on 21 March.

Test 2: comparison method: this analysis tests if the amenity space receives at least $80 \%$ of sunlight of its former value. If this is the case the BRE guidance states that the loss of sunlight is negligible.
The BRE Guide recommends that for a garden or amenity to appear adequately sunlit throughout the year, at least half of it should receive at least two hours of sunlight on 21 March.
For both the impact of the existing amenity spaces and outdoor spaces within Plot 18, an overshadowing assessment has been also carried on the 21 June (mid-summer's day).


Figure 10: View toward Aylesbury Square

### 6.0 Site model

The technical analysis was carried out by creating a three-dimensional model of the scheme and its surroundings in IES <VE> software.
The Daylight and Sunlight Assessment of Plot 18 and the impact on the surrounding buildings was based on up-to-date drawings provided by the design team on $28^{\text {th }}$ March 2016.
The simulations were carried out considering two different models:

Model 1: Baseline condition (existing condition with the existing buildings on site)
Model 2: New Development Option (Development Parcel 18 with the surrounding existing buildings)
Floor layouts shown on the next pages highlight those units included in the daylight and sunlight study described in the following sections.
Daylight and Sunlight calculations were based on the following assumptions:

- The standard CIE (Commission Internationale de L'Eclairage - International Commission on Illumination) overcast sky was used
- The working plane was set at 0.85 m above the floor as per the BRE guidance for dwellings
- A maintenance factor of 0.90 has been assumed (medium room direct/indirect clean twice per year)
- Clean, clear double glazing with a low emissivity coating was assumed with diffuse visible transmittance of 0.7 (Internal and external reflectance of 0.10 )
- The following values were used for the room surfaces' reflectance to match the reflectance of the materials that will be selected by the architects: 0.60 for walls, 0.70 for ceilings and 0.40 for floors
- Calculations have not taken into account reflectance of external surfaces. This would improve results as light-coloured external surfaces would reflect light back to the living areas.
- The impact of the existing trees and the proposed planting on the skylight and sunlight were considered to be negligible. Therefore, trees and hedges were excluded from the calculation.


Figure 11: 3D view of the model created with IES Virtual Environment software
Code naming conventions: B1-0101-Bedroom


### 6.0 Site model



Figure 13: Location of wheelchair units

### 7.0 Daylight assessment

### 7.1 Impact on existing surrounding buildings

In accordance with the BRE guide and the site inspection the following existing buildings required assessment.

| Building 1 | Dawes Street - Chadwell House |
| :--- | :--- |
| Building 2 | Dawes Street |
| Building 3 | Dawes Street |
| Building 4 | Dawes Street |
| Building 5 | Dawes Street |
| Building 6 | Dawes Street |
| Building 7 | Thurlow Street |
| Building 8 | Thurlow Street |
| Building 9 | Inville Road |

The results of our VSC analysis are shown in full in Appendix D.
Because of the importance of the impact of the new development in terms of daylight, the comparison of the existing situation with the new one has been analysed even though the VSC on the existing buildings with the new Development in place complies with the requirements - VSC of at least 27\% (Test 2).
The results indicate that most of the windows - 378 windows out of 486 - surrounding the site will continue to receive adequate daylight as defined by the BRE guidance.
In particular there will be 8 windows failing the daylight criteria in Building 4 in Dawes Street. They will directly face the proposed buildings, where the current situation shows no existing buildings in front of them. Of these failing windows only two - window 3 and window 4 - will experience a VSC reduction of almost $30 \%$, the remainder will have marginal failures, with a reduction of no more than ca. 26\%. The windows at the ground floor level are also part of commercial units, therefore the impact can be considered negligible.
20 windows out of 30 in Building 7 in Thurlow Street will be also negatively affected. This is due to the North Block and particularly to the Special Tower which will obstruct the light from the windows facing South. It should be noted that Building 7 is part of the Aylesbury Estate Regeneration Scheme and it is planned to be demolished in the coming years, therefore the negative impact of the above windows can be considered as negligible.

71 out of 295 windows in Building 8 will be adversely affected by the Development Parcel 18 and in particular by the North Block. In particular windows at the lower levels and windows below a recessed balcony will be negatively affected. The presence of balconies and recessed walls can significantly reduce the light entering below. Because the balcony cuts
out light from the top part of the sky, even a modest obstruction opposite may result in a large relative impact on the VSC.
As stated for Building 7 above, the impact of the affected windows in Building 8 can be considered negligible as it is part of the Aylesbury Regeneration Scheme and it is planned to be demolished.
9 windows out 58 in Building 9 will be negatively affected by the South Block. Three windows are located on the first floor and the remainder on the floor above, which consist of recessed walls and full height windows.
As for Building 7 and Building 8, the affected windows of Building 9 will have a negligible impact given that they are within the Aylesbury Estate Regeneration Scheme.

Table 6 presents a summary of the results. The table shows that $78 \%$ of the assessed openings will pass the criteria set by the BRE Guide and the remainder will fail as explained above.

The following pages show the location of the affected openings; they have been highlighted in a light yellow.

### 7.0 Daylight assessment

### 7.1 Impact on existing surrounding buildings



Table 6: Daylight Assessment - Impact on the existing properties - Summary of the results

### 7.0 Daylight assessment

### 7.1 Impact on existing surrounding buildings

## Building 4 - Dawes Street



### 7.0 Daylight assessment

### 7.1 Impact on existing surrounding buildings

Building 7 - Thurlow Street


### 7.0 Daylight assessment

### 7.1 Impact on existing surrounding buildings

## Buildina 8A - Thurlow Street

## THURLOW STREET

## Building 8B - Thurlow Street



THURLOW STREET


### 7.0 Daylight assessment

### 7.1 Impact on existing surrounding buildings

## Building 9 - Inville Road



### 7.0 Daylight assessment

### 7.2 Assessment of the new development

A Daylight Assessment has been undertaken for the residential units in the North Block. All the units rather than representative units - have been analysed.
Following the methodology described in section 5.2 - Assessment within the new buildings - the Average Daylight Factor (ADF) analysis has been undertaken.

The BRE Guide refers to BS 8206-2 to set the minimum daylight levels for each space. Each space has been assessed against the following criteria:

- Kitchens: minimum ADF: 2\%
- Living rooms and dining rooms: minimum ADF: 1.5\%
- Bedrooms: minimum ADF: 1\%

Detailed results are presented in Appendix C and include a column indicating if the units achieve at least $5 \%$ ADF; this value indicates when a space is particularly well lit.

The sky-line test has also been carried out for the same units.
The location and the numbering of the units is shown in Section 6 of this document.

Table 7 presents a summary of the daylight analysis results, in terms of daylight provision (Average Daylight Factor) and daylight distribution (View of the Sky). A total number of 324 rooms across the scheme have been assessed against the BRE criteria.

### 7.2.1 Average Daylight Factor

A total of 297 rooms pass the ADF criteria, which in terms of percentage corresponds to $92 \%$ of the tested spaces.
The achievement of this particularly good result has been possible by working closely with the architects. Multiple iterations have been run to find the best solution achieving acceptable lighting values and taking into account all the project related constrains.
The North Block consists in Community Facility and Commercial use at the ground floor level and 122 residential units above. The residential units are distributed into three sub-blocks as shown in Section 6 of this report.
There are 6 rooms in Block 1 that will fail the ADF criteria. From the first to the sixth floor, the bedroom of unit 1 will achieve .ca $0.7 \%$ not meeting the target of $1 \%$. This is due to the combined effect of the balcony above, the presence of opposite existing buildings and to the shape of the room itself. Given that the opposite building is planned to be demolished, it is expected that daylight levels within
the room will improve, therefore achieving acceptable daylight levels.
Block 2 will have 11 rooms failing the DF criteria. The kitchen and the living room in unit 1 will fail on the first and second floor. This is due to the presence of the balcony above the main window and the fact that the window of the kitchen faces the other portion of the building. The room is also deep and needs to achieve $2 \%$. For Unit 2, the living room at the first floor and the kitchens from the first to the fourth floor also fail the criteria. The reason of the failures are similar to the kitchen and living room of Unit one. Unit 2 is also located close to Block 3 and the window of the kitchen will be particularly affected by the corner. Units 3 and 4 will both see the kitchens not meeting the target.
The layout of these units has been tested comparing several options and the final layout is the result of the best compromise achieved with the design team. Although some of the kitchens fail, the illuminance levels have been maximised. In particular, the deck access has been reduced and reshaped, the window size of the kitchens has been increased and some glazed area has been provided above the main entrance door of the units.
The results for Block 3 show 10 out of 70 rooms failing the BRE criteria. At the first floor the kitchen and the living room of Units 1 and 2 do not meet the target because of the combined effect of the shape of the room and the presence of the South Block in front of the main window. The bedroom of unit 2 at the first floor will also fail, given the opposite South Block and the fact that there is a balcony above the window. The kitchen and living room of Unit 6 on the first, second and third floor will fail. The $L$ shape of the room, the fact that there is a balcony above the two windows, the presence of opposite buildings and the higher target of the space ( $2 \%$ ), are all factors that influence the result. Lastly, the two rooms in Unit 7 show that the target will not be met on the first and second floor. It is expected that in the following years there will be an improvement when the existing building at North will be demolished. Some strategies have also been adopted: the deck access, previously proposed, has been eliminated, the internal layout has been modified and the width and the depth of the balcony has been discussed with the design team.
Overall, most of the rooms will achieve good daylight levels. There will be seven 27 out of 297 rooms not achieving the minimum values recommended by BRE. Some of these failing spaces will improve their condition with the demolition of the existing buildings within the regeneration area.
The following figure shows the location of the failing rooms described above.

### 7.0 Daylight assessment

### 7.2 Assessment of the new development



Figure 14: Location of rooms failing the DF criteria. This figure shows the First Floor plan which includes the wheelchair units as shown in Section 6. The floors above have a different configuration. The model that has been analyzed is based on the drawings provided on $28^{\text {th }}$ March 2016 , two weeks before the planning application. The design team has then changed the location of one of the wheelchair units. In particular, Unit 7 in Block 3 has been moved on the second floor above Unit 1. The failing rooms on the first and second floor of Unit 7 are not part of a wheelchair dwelling anymore.

### 7.2.2 No-Sky Line

The No-Sky Line divides the areas of the working plane which can receive direct skylight, from those which cannot. It is a measure of the distribution of daylight in a room. To achieve acceptable conditions, the BRE guide recommends that the view of the sky is met on at least $80 \%$ of the area.
A total of 33 rooms will not achieve this criterion.
6 spaces in Block 1, located on the lower floors of the Special Tower, do not pass the target. In particular, the kitchen and living room area of Unit 3 achieve less than $80 \%$ of view of the sky from the first to the fourth floor.

In Block 2 there are 12 failing rooms, 9 of them are kitchens located on the first three floors. The distance to the opposite facade of the building does not allow the light to be sufficiently distributed in these spaces. These results have been discussed from the very beginning of the project and given the high number of constrains, it has been decided to minimize the failure with the strategies described previously.

15 rooms in Block 3 fail, of which 8 are located on the first floor and the remainder are on the second floor. They fail because of opposite buildings and in most of the cases because they are deep rooms, in which case the distribution of the skylight can be difficult to achieve.

Overall, most of the rooms will achieve good values for this test. $86 \%$ of the spaces pass the criteria and $14 \%$ fail. As noted for the Average Daylight Factor calculation, it is expected that the units located at north and east will perform better following the demolition of the existing properties within the Aylesbury Estate Regeneration Scheme.

The following figures show the location of the failing rooms.

### 7.0 Daylight assessment

### 7.2 Assessment of the new development



Figure 15: Location of the rooms failing the No-Sky Line test on the First Floor.


Figure 16: Location of the rooms failing the No-Sky Line for the units above the First Floor

### 7.0 Daylight assessment

### 7.2 Assessment of the new development

Plot 18A

| Unit |
| :--- |
| U |
| Floor |

Table 7: Daylight Assessment - Residential units in the North Block - Summary of the results

### 8.0 Sunlight assessment

### 8.1 Impact on existing surrounding properties

Sunlight is an important issue to consider for the quality of an internal space. The orientation of windows and the position of a building on a site will have an impact on the amount of sunlight this receives but will also have an effect on the sunlight neighbouring buildings receive. Unlike daylight, which is non-directional and assumes that light from the sky is uniform, the availability of sunlight is dependent on the orientation of the window or area of ground being assessed relative to the position of due south.
In accordance with the BRE Guide, only windows facing within 90 degrees of due south need to be assessed, therefore the windows of the following buildings have been analysed:

| Building 2 | Dawes Street |
| :--- | :--- |
| Building 3 | Dawes Street |
| Building 5 | Dawes Street |
| Building 7 | Thurlow Street |
| Building 8 | Thurlow Street |

The results of the sunlight analysis are shown in full in Appendix.

Table 8 summarises the sunlight assessment for the surrounding existing properties.
The results indicate that most of the buildings surrounding the site will continue to receive adequate sunlight as defined by the BRE guidance.
271 windows pass the Percentage Sunlight Hours test: they will receive adequate sunlight hours during the full year ( $25 \%$ of sunlight hours) and during the winter period ( $5 \%$ of sunlight hours).

When windows fail the APSH test, the comparison with the existing situation is needed to understand the amount of losses (negative impact) or possible gains (positive impact) achieved after the development. The comparison test has been undertaken for all the windows, including those achieving the APSH criteria.
Buildings 2, 3 and 5 will not be negatively affected by Plot 18.
Building 7 will have 14 windows adversely affected due the Special Tower that will be built in front of it. However, these windows are part of the building which is planned to be demolished in the following phases of Aylesbury Estate Regeneration Scheme.
Building 8 has been sub-divided into three blocks. 70 windows in Blocks 8 A and 8 B will not achieve the sunlight levels required by BRE. Most of these openings are located below deep and continuous balconies.

Balconies and overhangs above an existing window tend to block sunlight, especially in summer. Even a modest obstruction opposite may result in a large relative impact on the sunlight received. As the BRE guide 'Site layout planning for daylight and sunlight' states:

One way to demonstrate this would be to carry out an additional calculation of the APSH, for both the existing and proposed situations, without the balcony in place. For example, if the proposed APSH with the balcony was under 0.8 times the existing value with the balcony, but the same ratio for the values without the balcony was well over 0.8, this would show that the presence of the balcony, rather than the size of the new obstruction, was the main factor in the relative loss of sunlight.

Building 8 is also part of the Aylesbury Estate Regeneration Scheme. As a result of this, it is likely that the building will be demolished and the impact of all the windows can therefore be considered as negligible.
In sum, the sunlight assessment shows that most of the analysed windows will receive adequate APSH values, in accordance with the recommendations set by the BRE Guide.

There are 271 windows passing the sunlight criteria, equal to $76 \%$ of the total number of openings. 84 out of 355 windows fail the test. These are located in two buildings which are both part of the Aylesbury Estate Regeneration Scheme and they will be demolished as long as the scheme will go ahead. It can be concluded that there will be no negative impact on site following the construction of Plot 18.

### 8.0 Sunlight assessment

### 8.1 Impact on existing surrounding properties



Table 8: Sunlight Assessment - Impact on the existing properties - Summary of the results

### 8.0 Sunlight assessment

### 8.1 Impact on existing surrounding properties

Building 7 - Thurlow Street


### 8.0 Sunlight assessment

### 8.1 Impact on existing surrounding properties

## Building 8A - Thurlow Street

$\square$






THURLOW STREET

## Building 8B - Thurlow Street




### 8.0 Sunlight assessment

### 8.2 Assessment of the new development

The main requirement for sunlight in houses is in living rooms, where it is valued at any time day but especially in the afternoon. Where possible these should have at least one window that faces $90^{\circ}$ of due south.

As sunlight provision depends highly on the units' orientation, for a development of this size, BRE recognize that not all living areas will achieve compliance due to orientation constrains. Therefore, the BRE guidance applies mainly to South facing living rooms, as rooms that face significantly north of due east or west are unlikely to meet the BRE standards.

A total of 117 living rooms that have at least a window facing due South were assessed. Table 9 summarises the performance of the assessed units. Detailed results can be found in Appendix D.
The Sunlight Assessment shows that all the rooms that have been tested achieve the APSH target.


[^1]
### 9.0 Overshadowing assessment

### 9.1 Impact on existing surrounding buildings

The recommendations set out in the BRE guide explain how to ensure that spaces between buildings are not permanently in shade for a large part of the year.
Fences over 1.5 m tall are also factored into the calculations. The external spaces which have been assessed are shown in the following pages.
Table 10 below summarises the results of the Sunlight Assessment on the external areas.

The analysis shows that most of the amenity spaces achieve good levels of sunlight after the development without significant changes to the current situation.
There is only one external area which will be adversely affected by Plot 18: Space 1.


Figure 17 - Location of the analysed spaces


Table 10: Sunlight Assessment - Impact on the external amenity spaces - Summary of the results

### 9.0 Overshadowing assessment

### 9.1 Impact on existing surrounding buildings

## $21^{\text {st }}$ March

Colours in images 19 and 20 below show the areas which receive at least two hours of sun on $21^{\text {st }}$ March


Figure 19-Existing scenario-21 March


Figure 21 - Location of the analysed spaces


Figure 20 - Proposed scenario - 21 March


Figure 22 - Site map

### 9.0 Overshadowing assessment

### 9.1 Impact on existing surrounding buildings

$21^{\text {st }}$ June
Colours in images 23 and 24 below show the areas which receive at least two hours of sun on $21^{\text {st }}$ June


Figure 23 - Existing scenario-21 June


Figure 25 - Location of the analysed spaces


Figure 24 - Proposed scenario-21 June


Figure 26 - Site map

### 9.0 Overshadowing assessment 9.2 Assessment of the new development

A Sunlight Assessment has been undertaken for Aylesbury Square. Initial analyses were carried out at to inform the landscape architects and the design team of the North Block and the South Block.

The area achieves very good sunlight levels throughout the year.
The space in front of the Special Tower was found particularly adequate for sitting, therefore an appropriate space has been located as shown in figure below.

Section 6 of the DAS document describes the architectural decisions for Aylesbury Square.


Figure 27 - Aylesbury Square


Figure 28 - Aylesbury Square - Illustrative Plan

### 10.0 Conclusions

A Daylight, Sunlight and Overshadowing Assessment has been undertaken by HTA Design LLP, gauging the likely impact of the development on the surrounding buildings and within the development.
During the demolition and construction phases, there are not expected to be significant impacts.
When Plot 18 will be constructed, the results of the impact on the surrounding buildings shows that the majority of the properties will not be adversely affected by the development.
Because of the importance of the impact of the new development in terms of daylight, the comparison of the existing situation with the new one has been analysed even though the VSC on the existing buildings with the new Development in place complies with the requirements - VSC of at least $27 \%$.
The results indicate that most of the windows - 378 windows out of 486 - surrounding the site will continue to receive adequate daylight as defined by the BRE guidance. The remainder will be mostly located in buildings which are part of the Aylesbury Estate Regeneration Scheme. There are only 8 failing windows located in the building opposite to the North Block in Dawes Street, which is part of the Liverpool Grove Conservation Area. This is due to the fact the currently there is no building opposite to it. These windows are mostly part of commercial units and therefore the impact can be considered as negligible.

A Daylight Assessment has been undertaken for the residential units in the North Block. All the units rather than representative units - have been analysed.
Following the methodology described in section 5.2 - Assessment within the new buildings - the Average Daylight Factor (ADF) analysis has been undertaken.
Most of the rooms will achieve good daylight levels. There will be seven 27 out of 297 rooms not achieving the minimum values recommended by BRE. The remaining rooms, which represent $92 \%$ of total number of tested spaces, will pass the criteria. Some of these failing spaces will improve their condition with the demolition of the existing buildings within the regeneration area.

The Sunlight analysis has been undertaken to assess the impact of Plot 18 on the surroundings.
There are 271 windows passing the sunlight criteria, equal to $76 \%$ of the total number of openings. 84 out of 355 windows fail the test. These are located in two buildings which are both part of the Aylesbury Estate Regeneration Scheme and they will be demolished as long as the scheme will go ahead. It can be concluded that there will be no negative impact on the site following the construction of Plot 18.

The Sunlight Assessment has been also carried out for the dwelling within Plot 18. Only the main living rooms facing 90 degrees of due South have been analysed.

The analysis shows that all the rooms will pass the APSH criteria.

Sunlight levels on the existing external spaces have been calculated to assess if there is any impact following the construction of Plot 18.
Only one external area will be adversely affected by Plot 18.

The space is within the Liverpool Grove Conservation Area as shown on figure below. Initial calculations were carried out spotting the most critical points of the development. Special attention was paid on the design of the elevations and height of Subplot 18b façade directly facing this area. Given the nature of the space and of the proposed development, and the fact that a new street and a new sky-line will be proposed in front of the building improving the quality of site, this failure can be considered as acceptable.
The Sunlight calculations were carried out for Aylesbury Square. The space achieves very good results throughout the year and the values were shared with the landscape team to guide their decisions.

Appendix A
Detailed Daylight/Sunlight results - Impact on the surrounding buildings

Building 1 - Dawes Street - Chadwell House


Building 1 - Dawes Street - Chadwell House


Building 1 - Dawes Street - Chadwell House
DAYLIGHT

| Floor $\quad$ Window ID | Existing VSC <br> $(\%)$ | Proposed VSC <br> $(\%)$ | Difference <br> $(\%)$ | Condition |
| :---: | :---: | :---: | :---: | :---: |

Building 1 - Dawes Street - Chadwell House

| GF | 1 | 29.26 | 30.11 | 2.9\% | Pass |
| :---: | :---: | :---: | :---: | :---: | :---: |
| GF | 2 | 29.28 | 29.65 | 1.3\% | Pass |
| GF | 3 | 28.27 | 28.96 | 2.4\% | Pass |
| GF | 13 | 26.28 | 26.94 | 2.5\% | Pass |
| GF | 17 | 15.96 | 15.15 | -5.1\% | Pass |
| GF | 21 | 20.22 | 18.55 | -8.3\% | Pass |
| GF | 22 | 18.82 | 17.12 | -9.0\% | Pass |
| GF | 23 | 16.42 | 14.69 | -10.5\% | Pass |
| GF | 24 | 14.54 | 12.77 | -12.2\% | Pass |
| GF | 25 | 14.37 | 12.65 | -12.0\% | Pass |
| GF | 26 | 11.73 | 9.59 | -18.2\% | Pass |
| GF | 27 | 9.65 | 7.75 | -19.7\% | Pass |
| GF | 28 | 7.12 | 5.88 | -17.4\% | Pass |
|  | 13 | Passing windows |  |  | 13 |
| 1 F | 4 | 33.19 | 31.91 | -3.9\% | Pass |
| 1 F | 5 | 31.98 | 31.44 | -1.7\% | Pass |
| 1 F | 6 | 29.61 | 30.75 | 3.9\% | Pass |
| 1 F | 14 | 28.44 | 28.87 | 1.5\% | Pass |
| 1F | 18 | 17.75 | 16.43 | -7.4\% | Pass |
|  | 5 | Passing windows |  |  | 5 |
| 2 F | 7 | 35.92 | 34.55 | -3.8\% | Pass |
| 2 F | 8 | 35.18 | 33.84 | -3.8\% | Pass |
| 2 F | 9 | 31.52 | 31.52 | 0.0\% | Pass |
| 2 F | 15 | 31.18 | 31.18 | 0.0\% | Pass |
| 2 F | 19 | 19.28 | 17.76 | -7.9\% | Pass |
|  | 5 | Passing windows |  |  | 5 |
| 3 F | 10 | 37.53 | 36.93 | -1.6\% | Pass |
| 3 F | 11 | 37.26 | 36.22 | -2.8\% | Pass |
| 3 F | 12 | 34.8 | 33.21 | -4.6\% | Pass |
| 3 F | 16 | 35.09 | 35.32 | 35.1\% | Pass |
| 3 F | 20 | 21.85 | 20.33 | -7.0\% | Pass |
|  | 5 | Passing windows |  |  | 5 |
|  |  | Number of passing windows |  |  | 28 |

## Building 2 - Dawes Street



Building 2 - Dawes Street - Chadwell House DAYLIGHT

Floor Window ID \begin{tabular}{c|c|c|c|c|}

\hline | Existing VSC |
| :---: |
| $(\%)$ | \& | Proposed VSC |
| :---: |
| $(\%)$ | \& | Difference |
| :---: |
| $(\%)$ | \& Condition <br>

\hline
\end{tabular}

Building 2 - Dawes Street

| GF | 1 |
| :---: | :---: |
| GF | 2 |
| GF | 3 |
| GF | 4 |
| GF | 10 |
| GF | 11 |


| 25.18 | 24.91 | $-1.1 \%$ | Pass |
| :---: | :---: | :---: | :---: |
| 20.3 | 20.62 | $1.6 \%$ | Pass |
| 25.22 | 25.45 | $0.9 \%$ | Pass |
| 26.98 | 27.32 | $1.3 \%$ | Pass |
| 33.79 | 32.85 | $-2.8 \%$ | Pass |
| 34.22 | 33.08 | $-3.3 \%$ | Pass |


| 1 F | 5 |
| :---: | :---: |
| 1 F | 6 |
| 1 F | 7 |
| 1 F | 8 |
| 1 F | 9 |
| 1 F | 12 |
| 1 F | 13 |
| 1 F | 14 |
| 1 F | 15 |


| 28.2 | 27.66 | $-1.9 \%$ | Pass |
| :---: | :---: | :---: | :---: |
| 22.82 | 22.2 | $-2.7 \%$ | Pass |
| 28.82 | 28 | $-2.8 \%$ | Pass |
| 29.78 | 30.1 | $1.1 \%$ | Pass |
| 32.02 | 28.66 | $-10.5 \%$ | Pass |
| 29.24 | 28.63 | $-2.1 \%$ | Pass |
| 35.29 | 34.23 | $-3.0 \%$ | Pass |
| 31.04 | 31.45 | $1.3 \%$ | Pass |
| 35.58 | 34.83 | $-2.1 \%$ | Pass |

Number of passing windows

## Building 2 - Dawes Street - Chadwell House

 SUNLIGHT

Building 3 - Dawes Street - Chadwell House


Building 3 - Dawes Street - Chadwell House DAYLIGHT

Floor Window ID \begin{tabular}{|c|c|c|c|}

\hline | Existing VSC |
| :---: |
| $(\%)$ | \& | Proposed VSC |
| :---: |
| $(\%)$ | \& | Difference |
| :---: |
| $(\%)$ | \& Condition <br>

\hline
\end{tabular}

Building 3 - Dawes Street

| GF | 1 |
| :---: | :---: |
| GF | 2 |
| GF | 7 |
| GF | 9 |


| 32.12 | 32.59 | $1.5 \%$ | Pass |
| :---: | :---: | :---: | :---: |
| 31.91 | 31.1 | $-2.5 \%$ | Pass |
| 23.7 | 23.05 | $-2.7 \%$ | Pass |
| 8.48 | 7.07 | $-16.6 \%$ | Pass |
| Passing windows |  |  |  |


| 1 F | 3 |
| :---: | :---: |
| 1 F | 4 |
| 1 F | 5 |
| 1 F | 6 |
| 1 F | 8 |
| 1 F | 10 |
|  |  |


| 33.4 | 35.37 | $5.9 \%$ | Pass |
| :---: | :---: | :---: | :---: |
| 35.93 | 35.53 | $-1.1 \%$ | Pass |
| 35.83 | 34.99 | $-2.3 \%$ | Pass |
| 35.98 | 34.98 | $-2.8 \%$ | Pass |
| 26.21 | 25.72 | $-1.9 \%$ | Pass |
| 15.63 | 14.08 | $-9.9 \%$ | Pass |
| Passing windows |  |  |  |

Number of passing windows

Building 3 - Dawes Street - Chadwell House SUNLIGHT

| Floor | Window ID | Window orientation | Annual APSH | Winter APSH | Condition | Annual APSH | Losses/ Gains | Condition (Annual) | Winter APSH | Losses/ Gains | Condition (Winter) | Condiiton |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Building 3-Dawes Street |  |  | Proposed condition |  |  | Existing condition |  |  |  |  |  |  |
| GF | 1 | SE | 57.20\% | 65.52\% | Pass | 58.00\% | -1.4\% | Pass | 65.52\% | 0.0\% | Pass | Pass |
| GF | 2 | SE | 54.69\% | 54.69\% | Pass | 41.15\% | 32.9\% | Pass | 54.69\% | 0.0\% | Pass | Pass |
| GF | 7 | SE | 28.30\% | 19.03\% | Pass | 29.69\% | $-4.7 \%$ | Pass | 19.03\% | 0.0\% | Pass | Pass |
|  | 3 |  | Passing windows |  | 3 | Passing windows |  |  |  |  |  | 3 |
| 1 F | 3 | SE | 59.45\% | 71.87\% | Pass | 59.84\% | -0.7\% | Pass | 71.04\% | 1.2\% | Pass | Pass |
| ${ }_{1 F}$ | 4 | SE | 59.45\% | 72.05\% | Pass | 59.74\% | -0.5\% | Pass | 41.00\% | 75.7\% | Pass | Pass |
| 1 F | 5 | SE | 58.48\% | 71.41\% | Pass | 59.95\% | -2.5\% | Pass | 71.41\% | 0.0\% | Pass | Pass |
| ${ }_{1}$ | 6 | SE | 57.75\% | 72.23\% | Pass | 58.83\% | -1.8\% | Pass | 70.41\% | 2.6\% | Pass | Pass |
| 1 F | 8 | SE | 34.05\% | 27.50\% | Pass | 34.35\% | -0.9\% | Pass | 25.68\% | 7.1\% | Pass | Pass |
| 5 |  |  | Passing windows |  |  | Passing windows |  |  |  |  |  | 5 |
|  |  |  | Building 1 - Number of passing windows | 8 |

Building 4 - Dawes Street


Building 4 - Dawes Street - Chadwell House DAYLIGHT

Floor Window ID \begin{tabular}{|c|c|c|c|c|}

\hline | Existing VSC |
| :---: |
| $(\%)$ | \& | Proposed VSC |
| :---: |
| $(\%)$ | \& | Difference |
| :---: |
| $(\%)$ | \& Condition <br>

\hline
\end{tabular}

Building 4 - Dawes Street

| GF | 1 |
| :---: | :---: |
| GF | 2 |
| GF | 3 |
| GF | 4 |
| GF | 10 |
| GF | 12 |
| GF | 13 |


| 32.24 | 23.82 | $-26.1 \%$ | Fail |
| :---: | :---: | :---: | :---: |
| 32.24 | 23.84 | $-26.1 \%$ | Fail |
| 32.06 | 22.7 | $-29.2 \%$ | Fail |
| 31.83 | 22.77 | $-28.5 \%$ | Fail |
| 30.17 | 23.8 | $-21.1 \%$ | Fail |
| 29.1 | 27.5 | $-5.5 \%$ | Pass |
| 27.89 | 26.09 | $-6.5 \%$ | Pass |


| 1 F | 5 |
| :---: | :---: |
| 1 F | 6 |
| 1 F | 7 |
| 1 F | 8 |
| 1 F | 9 |
| 1 F | 11 |
| 1 F | 14 |
| 1 F | 15 |


| 33.51 | 26.85 | $-19.9 \%$ | Pass |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 32.73 | 26.33 | $-19.6 \%$ | Pass |  |  |
| 33.48 | 26.15 | $-21.9 \%$ | Fail |  |  |
| 29.62 | 22.25 | $-24.9 \%$ | Fail |  |  |
| 32.8 | 25.42 | $-22.5 \%$ | Fail |  |  |
| 32.69 | 26.46 | $-19.1 \%$ | Pass |  |  |
| 29.72 | 29.51 | $-0.7 \%$ | Pass |  |  |
| 29.26 | 28.34 | $-3.1 \%$ | Pass |  |  |
| Passing windows |  |  |  |  | 5 |

Number of passing windows

Building 5 - Dawes Street


Building 5 - Dawes Street - Chadwell House DAYLIGHT

| Floor $\quad$ Window ID | Existing VSC <br> $(\%)$ | Proposed VSC <br> $(\%)$ | Difference <br> $(\%)$ | Condition |
| :---: | :---: | :---: | :---: | :---: |

Building 5 - Dawes Street

| GF | 1 |
| :---: | :---: |
| GF | 8 |
| GF | 11 |
| GF | 12 |
| GF | 15 |
| GF | 16 |


| 36.42 | 35.37 | $-2.9 \%$ | Pass |
| :---: | :---: | :---: | :--- |
| 34.09 | 31.44 | $-7.8 \%$ | Pass |
| 33.68 | 30.85 | $-8.4 \%$ | Pass |
| 33.86 | 30.8 | $-9.0 \%$ | Pass |
| 28.48 | 23.58 | $-17.2 \%$ | Pass |
| 26.32 | 23.25 | $-11.7 \%$ | Pass |


| 1 F | 2 |
| :---: | :---: |
| 1 F | 3 |
| 1 F | 4 |
| 1 F | 9 |
| 1 F | 13 |
| 1 F | 17 |
| 1 F | 18 |


| 38.45 | 37.82 | $-1.6 \%$ | Pass |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 38.26 | 37.64 | $-1.6 \%$ | Pass |  |  |
| 38.09 | 37.48 | $-1.6 \%$ | Pass |  |  |
| 37.55 | 35.73 | $-4.8 \%$ | Pass |  |  |
| 36.94 | 34.92 | $-5.5 \%$ | Pass |  |  |
| 30.82 | 26.51 | $-14.0 \%$ | Pass |  |  |
| 29.15 | 26.72 | $-8.3 \%$ | Pass |  |  |
| Passing windows |  |  |  |  | 7 |


| 2 F | 5 |
| :---: | :---: |
| 2 F | 6 |
| 2 F | 7 |
| 2 F | 10 |
| 2 F | 14 |
| 2 F | 19 |
| 2 F | 20 |


| 38.45 | 37.84 | $-1.6 \%$ | Pass |
| :---: | :---: | :---: | :---: |
| 38.58 | 37.83 | $-1.9 \%$ | Pass |
| 38.29 | 37.72 | $-1.5 \%$ | Pass |
| 38.43 | 37.05 | $-3.6 \%$ | Pass |
| 37.52 | 36.12 | $-3.7 \%$ | Pass |
| 32.87 | 29.48 | $-10.3 \%$ | Pass |
| 30.82 | 28.77 | $-6.7 \%$ | Pass |
| Number of passing windows |  |  |  |


| 7 | 20 |
| :---: | :---: |

Building 5 - Dawes Street
SUNLIGHT

| FloorWindow <br> ID |
| :--- |
| Window orientation |
| Building 5-Dawes Street |
| GF 1 SE <br> GF 8 SE <br> GF 11 SE <br> GF 12 SE |


| Annual APSH Winter APSH Condition |
| :--- |
| $66.01 \%$ $73.89 \%$ Pass <br> $53.89 \%$ $61.50 \%$ Pass <br> $51.71 \%$ $58.97 \%$ Pass <br> $52.29 \%$ $60.53 \%$ Pass |


| Annual APSH | Losses/ <br> Gains |
| :--- | :--- |

Condition Winter APSH (Winter)

| ${ }_{1}$ | 2 | SE |
| :---: | :---: | :---: |
| ${ }_{1}$ | 3 | SE |
| 1 F | 4 | SE |
| ${ }_{1}$ | 9 | SE |
| 1 F | 13 | SE |


| Passing windows |
| :--- |
| $72.83 \%$ $88.86 \%$ Pass <br> $72.63 \%$ $88.70 \%$ Pass <br> $72.11 \%$ $88.07 \%$ Pass <br> $63.46 \%$ $80.45 \%$ Pass <br> $60.87 \%$ $79.33 \%$ Pass |
| Passing windows |
| $73.13 \%$ |
| $73.23 \%$ |
| $72.85 \%$ |
| $67.55 \%$ |
| $74.87 \%$ |


| Existing condition |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 71.26\% | -7.4\% | Pass | 79.31\% | -6.8\% | Pass | Pass |
| 61.33\% | -12.1\% | Pass | 64.20\% | -4.2\% | Pass | Pass |
| 60.37\% | -14.3\% | Pass | 63.37\% | -6.9\% | Pass | Pass |
| 60.90\% | -14.1\% | Pass | 64.90\% | -6.7\% | Pass | Pass |
| Passing windows |  |  |  |  |  | 4 |
| 76.04\% | $-4.2 \%$ | Pass | 91.14\% | -2.5\% | Pass | Pass |
| 75.88\% | $-4.3 \%$ | Pass | 91.01\% | -2.5\% | Pass | Pass |
| 75.40\% | -4.4\% | Pass | 89.98\% | -2.1\% | Pass | Pass |
| 68.29\% | $-7.1 \%$ | Pass | 80.61\% | -0.2\% | Pass | Pass |
| 67.78\% | -10.2\% | Pass | 82.66\% | -4.0\% | Pass | Pass |
| Passing windows |  |  |  |  |  | 5 |
| 75.64\% | $-3.3 \%$ | Pass | 99.88\% | -3.6\% | Pass | Pass |
| 75.84\% | -3.4\% | Pass | 99.14\% | -3.0\% | Pass | Pass |
| 75.63\% | $-3.7 \%$ | Pass | 97.98\% | $-1.9 \%$ | Pass | Pass |
| 72.04\% | -6.2\% | Pass | 89.09\% | -2.0\% | Pass | Pass |
| 81.30\% | -7.9\% | Pass | 85.60\% | -5.4\% | Pass | Pass |
| Passing windows |  |  |  |  |  | 5 |
| Building 1-Number of passing windows |  |  |  |  |  | 14 |

Building 6 - Dawes Street


Building 6 - Dawes Street - Chadwell House DAYLIGHT
Floor Window ID

| Existing VSC <br> $(\%)$ | Proposed VSC <br> $(\%)$ | Difference <br> $(\%)$ | Condition |
| :---: | :---: | :---: | :---: |

Building 6 - Dawes Street

| GF | 1 |
| :---: | :---: |
| GF | 2 |


| 24.73 | 22.68 | $-8.3 \%$ | Pass |
| :---: | :---: | :---: | :---: |
| 24.08 | 24.64 | $2.3 \%$ | Pass |
| Passing windows |  |  | 2 |


| 1 F | 3 |
| :---: | :---: |
| 1 F | 4 |
| 1 F | 5 |
| 1 F | 6 |


| 25.26 | 24.58 | $-2.7 \%$ | Pass |
| :---: | :---: | :---: | :---: |
| 25.59 | 24.85 | $-2.9 \%$ | Pass |
| 26.21 | 24.89 | $-5.0 \%$ | Pass |
| 26.65 | 25.52 | $-4.2 \%$ | Pass |
| Passing windows |  |  |  |

Building 7 - Thurlow Street


Building 7 - Dawes Street - Chadwell House DAYLIGHT

| Floor $\quad$ Window ID | Existing VSC <br> $(\%)$ | Proposed VSC <br> $(\%)$ | Difference <br> $(\%)$ | Condition |
| :---: | :---: | :---: | :---: | :---: |

Building 7 - Thurlow Street

| 1 F | 1 |
| :---: | :---: |
| 1 F | 11 |
| 1 F | 12 |


| 32.94 | 30.39 | $-7.7 \%$ | Pass |
| :---: | :---: | :---: | :---: |
| 22.96 | 7.06 | $-69.3 \%$ | Fail |
| 23.44 | 8.43 | $-64.0 \%$ | Fail |


| 2 F | 2 |
| :---: | :---: |
| 2 F | 13 |
| 2 F | 14 |


| 37.3 | 35.05 | $-6.0 \%$ | Pass |
| :---: | :---: | :---: | :---: |
| 23.27 | 9.67 | $-58.4 \%$ | Fail |
| 24.08 | 10.41 | $-56.8 \%$ | Fail |


| 3 F | 3 |
| :---: | :---: |
| 3 F | 15 |
| 3 F | 16 |


| 39.31 | 38.18 | $-2.9 \%$ | Pass |
| :---: | :---: | :---: | :---: |
| 23 | 11.16 | $-51.5 \%$ | Fail |
| 24.6 | 11.9 | $-51.6 \%$ | Fail |


| 4 F | 4 |
| :---: | :---: |
| 4 F | 17 |
| 4 F | 18 |


| 39.4 | 38.56 | $-2.1 \%$ | Pass |
| :---: | :---: | :---: | :---: |
| 24.3 | 13.67 | $-43.7 \%$ | Fail |
| 24.3 | 13.27 | $-45.4 \%$ | Fail |


| 5 F | 5 |
| :---: | :---: |
| 5 F | 19 |
| 5 F | 20 |


| 39.49 | 38.93 | $-1.4 \%$ | Pass |
| :---: | :---: | :---: | :---: |
| 24.82 | 14.08 | $-43.3 \%$ | Fail |
| 25.8 | 13.29 | $-48.5 \%$ | Fail |


| 6 F | 6 |
| :---: | :---: |
| 6 F | 21 |
| 6 F | 22 |


| 39.58 | 39.3 | $-0.7 \%$ | Pass |
| :---: | :---: | :---: | :---: |
| 24.37 |  | $-100.0 \%$ | Fail |
| 24.4 | 15.2 | $-37.7 \%$ | Fail |


| 7 F | 7 |
| :---: | :---: |
| 7 F | 23 |
| 7 F | 24 |


| 39.77 | 39.41 | $-0.9 \%$ | Pass |
| :---: | :---: | :---: | :---: |
| 24.58 | 14.6 | $-40.6 \%$ | Fail |
| 24.58 | 14.7 | $-40.2 \%$ | Fail |


| 8 F | 8 |
| :---: | :---: |
| 8 F | 25 |
| 8 F | 26 |


| 39.81 | 39.46 | $-0.9 \%$ | Pass |
| :---: | :---: | :---: | :---: |
| 25.35 | 16.02 | $-36.8 \%$ | Fail |
| 25.63 | 15.45 | $-39.7 \%$ | Fail |

Building 7 - Dawes Street - Chadwell House DAYLIGHT

| Floor | Window ID | Existing VSC <br> (\%) | Proposed VSC <br> (\%) | Difference <br> (\%) | Condition |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 9 F | 9 | 39.84 | 39.46 | -1.0\% | Pass |
| 9 F | 27 | 25.06 | 15.89 | -36.6\% | Fail |
| 9 F | 28 | 25.75 | 14.97 | -41.9\% | Fail |
|  | 3 |  |  | ssing windows | 1 |
| 10 F | 10 | 39.87 | 39.5 | -0.9\% | Pass |
| 10F | 29 | 24.76 | 15.75 | -36.4\% | Fail |
| 10F | 30 | 25.75 | 14.97 | -41.9\% | Fail |
| 3 |  | Passing windows |  |  | 1 |
|  |  | Number of passing windows |  |  | 10 |

## Building 7 - Dawes Street - Chadwell House SUNLIGHT

| Floor | Window ID | Window orientation | Annual APSH | Winter APSH | Condition | Annual APSH | Losses/ Gains | Condition (Annual) | Winter APSH | Losses/ Gains | Condition (Winter) | Condiiton |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Building 7-Thurlow Street |  |  | Proposed condition |  |  | Existing condition |  |  |  |  |  |  |
| GF | 1 | SW | 42.08\% | 16.64\% | Pass | 53.34\% | -21.1\% | Fail | 45.24\% | -63.2\% | Fail | Pass |
| GF | 11 | SE | 10.68\% | 3.68\% | Fail | 30.85\% | -65.4\% | Fail | 41.07\% | -91.0\% | Fail | Fail |
| GF | 12 | SE | 11.58\% | 5.79\% | Fail | 31.56\% | -63.3\% | Fail | 41.63\% | -86.1\% | Fail | Fail |
|  | 3 | Passing windows |  |  | 1 | Passing windows |  |  |  |  |  | 1 |
| 1 F | 2 | SW | 52.05\% | 39.91\% | Pass | 62.20\% | -16.3\% | Pass | 66.49\% | -40.0\% | Fail | Pass |
| 1 F | 13 | SE | 12.72\% | 5.54\% | Fail | 32.34\% | -60.7\% | Fail | 42.16\% | -86.9\% | Fail | Fail |
| 1 F | 14 | SE | 13.89\% | 8.41\% | Fail | 33.30\% | -58.3\% | Fail | 42.99\% | -80.4\% | Fail | Fail |
|  | 3 |  | Passing windows |  | 1 | Passing windows |  |  |  |  |  | 1 |
| 2 F | 3 | SW | 60.02\% | 60.55\% | Pass | 66.75\% | -10.1\% | Pass | 78.18\% | -22.6\% | Fail | Pass |
| 2 F | 15 | SE | 14.71\% | 10.57\% | Fail | 32.74\% | -55.1\% | Fail | 43.20\% | -75.5\% | Fail | Fail |
| 2 F | 16 | SE | 15.92\% | 13.46\% | Fail | 34.23\% | -53.5\% | Fail | 44.83\% | -70.0\% | Fail | Fail |
|  | 3 |  | Passing windows |  | 1 | Passing windows |  |  |  |  |  | 1 |
| 3 F | 4 | SW | 65.45\% | 71.85\% | Pass | 67.87\% | -3.6\% | Pass | 78.18\% | -8.1\% | Pass | Pass |
| 3 F | 17 | SE | 19.16\% | 20.62\% | Fail | 33.43\% | $-42.7 \%$ | Fail | 43.47\% | -52.6\% | Fail | Fail |
| 3 F | 18 | SE | 19.33\% | 21.28\% | Fail | 34.96\% | $-44.7 \%$ | Fail | 45.52\% | -53.3\% | Fail | Fail |
|  | 3 |  | Passing windows |  | 1 | Passing windows |  |  |  |  |  | 1 |
| $4 F$ | 5 | SW | 68.06\% | 78.18\% | Pass | 68.06\% | 0.0\% | Pass | 78.18\% | 0.0\% | Pass | Pass |
| 4F | 19 | SE | 23.32\% | 28.43\% | Fail | 35.47\% | -34.3\% | Fail | 45.53\% | -37.6\% | Fail | Fail |
| 4 F | 20 | SE | 22.24\% | 27.29\% | Fail | 36.41\% | -38.9\% | Fail | 47.93\% | -43.1\% | Fail | Fail |
|  | 3 |  | Passing windows |  | 1 | Passing windows |  |  |  |  |  | 1 |
| 5 F | 6 | SW | 68.06\% | 78.18\% | Pass | 68.06\% | 0.0\% | Pass | 78.18\% | 0.0\% | Pass | Pass |
| 5 F | 21 | SE | 24.13\% | 29.03\% | Fail | 36.05\% | -33.1\% | Fail | 45.53\% | -36.2\% | Fail | Fail |
| 5F | 22 | SE | 22.79\% | 27.39\% | Fail | 35.82\% | -36.4\% | Fail | 47.98\% | -42.9\% | Fail | Fail |
|  | 3 |  | Passing windows |  | 1 | Passing windows |  |  |  |  |  | 1 |
| 6 F | 7 | SW | 68.06\% | 78.18\% | Pass | 68.06\% | 0.0\% | Pass | 78.18\% | 0.0\% | Pass | Pass |
| 6F | 23 | SE | 23.81\% | 29.03\% | Fail | 37.17\% | -35.9\% | Fail | 45.54\% | -36.3\% | Fail | Fail |
| 6F | 24 | SE | 23.81\% | 27.66\% | Fail | 37.17\% | -35.9\% | Fail | 47.98\% | -42.4\% | Fail | Fail |
|  | 3 |  | 23.81\%Passing windows |  | 1 | Passing windows |  |  |  |  |  | 1 |
| 7 F | 8 | SW | 68.06\% | 78.18\% | Pass | 68.06\% | 0.0\% | Pass | 78.18\% | 0.0\% | Pass | Pass |
| 7 F | 25 | SE | 25.00\% | 29.03\% | Pass | 34.04\% | -26.6\% | Fail | 45.54\% | -36.3\% | Fail | Pass |
| 7 F | 26 | SE | 25.10\% | 27.78\% | Pass | 36.58\% | -31.4\% | Fail | 47.98\% | -42.1\% | Fail | Pass |
|  | 3 |  | Passing windows |  | 3 | Passing windows |  |  |  |  |  | 3 |
| 8F | 9 | SW | 68.06\% | 78.18\% | Pass | 68.06\% | 0.0\% | Pass | 78.18\% | 0.0\% | Pass | Pass |
| 8 F | 27 | SE | 25.01\% | 29.05\% | Pass | 35.83\% | -30.2\% | Fail | 45.56\% | -36.2\% | Fail | Pass |
| 8F | 28 | SE | 25.00\% | 27.78\% | Pass | 36.58\% | -31.7\% | Fail | 47.98\% | $-42.1 \%$ | Fail | Pass |
|  | 3 |  | Passing windows |  | 3 | Passing windows |  |  |  |  |  | 3 |
| 9 F | 10 | SW | 68.06\% | 78.18\% | Pass | 68.06\% | 0.0\% | Pass | 78.18\% | 0.0\% | Pass | Pass |
| 9 F | 29 | SE | 25.01\% | 27.91\% | Pass | 30.12\% | -17.0\% | Pass | 44.42\% | $-37.2 \%$ | Fail | Pass |
| 9 F | 30 | SE | 25.00\% | 27.80\% | Pass | 35.93\% | -30.4\% | Fail | 47.98\% | -42.1\% | Fail | Pass |
|  | 3 |  | Passing windows |  |  | Passing windows |  |  |  |  |  | 3 |
|  |  |  |  |  |  |  |  | ding 1 - Num | of passing wind |  |  | 16 |




Building 8A - Dawes Street - Chadwell House DAYLIGHT

| Floor $\quad$ Window ID | Existing VSC <br> $(\%)$ | Proposed VSC <br> $(\%)$ | Difference <br> $(\%)$ | Condition |
| :---: | :---: | :---: | :---: | :---: |

Building 8A - Thurlow Street

| GF | 1 |
| :---: | :---: |
| GF | 2 |
| GF | 3 |
| GF | 4 |
| GF | 5 |
| GF | 6 |
| GF | 7 |
| GF | 8 |
| GF | 9 |


| 29.54 | 22.23 | $-24.7 \%$ | Fail |
| :---: | :---: | :---: | :--- |
| 30.4 | 22.76 | $-25.1 \%$ | Fail |
| 32.25 | 23.68 | $-26.6 \%$ | Fail |
| 32.09 | 23.83 | $-25.7 \%$ | Fail |
| 33.17 | 23.16 | $-30.2 \%$ | Fail |
| 33.86 | 23.38 | $-31.0 \%$ | Fail |
| 34.41 | 24.1 | $-30.0 \%$ | Fail |
| 33.1 | 24.6 | $-25.7 \%$ | Fail |
| 35.43 | 26.13 | $-26.2 \%$ | Fail |


| 1 F | 10 |
| :---: | :---: |
| 1 F | 11 |
| 1 F | 12 |
| 1 F | 13 |
| 1 F | 14 |
| 1 F | 15 |
| 1 F | 16 |
| 1 F | 18 |
| 1 F | 19 |
| 1 F | 10 |


| 28.81 | 24.03 | $-16.6 \%$ | Pass |
| :--- | :--- | :--- | :--- |
| 30.79 | 24.31 | $-21.0 \%$ | Fail |
| 31.67 | 24.01 | $-24.2 \%$ | Fail |
| 32.72 | 24.75 | $-24.4 \%$ | Fail |
| 33.73 | 24.77 | $-26.6 \%$ | Fail |
| 34.48 | 24.46 | $-29.1 \%$ | Fail |
| 35.1 | 24.84 | $-29.2 \%$ | Fail |
| 35.76 | 25.05 | $-29.9 \%$ | Fail |
| 36.18 | 25.87 | $-28.5 \%$ | Fail |
| 36.88 | 27.68 | $-24.9 \%$ | Pass |


| 2 F | 20 |
| :---: | :---: |
| 2 F | 21 |
| 2 F | 22 |
| 2 F | 23 |
| 2 F | 24 |
| 2 F | 25 |
| 2 F | 26 |
| 2 F | 27 |
| 2 F | 28 |
| 2 F | 29 |


| 29.85 | 24.03 | $-19.5 \%$ | Pass |
| :--- | :---: | :---: | :---: |
| 10.57 | 6.57 | $-37.8 \%$ | Fail |
| 11.33 | 6.91 | $-39.0 \%$ | Fail |
| 11.91 | 7.11 | $-40.3 \%$ | Fail |
| 12.39 | 7.06 | $-43.0 \%$ | Fail |
| 13.12 | 7.41 | $-43.5 \%$ | Fail |
| 13.43 | 7.4 | $-44.9 \%$ | Fail |
| 13.78 | 7.6 | $-44.8 \%$ | Fail |
| 14.15 | 7.38 | $-47.8 \%$ | Fail |
| 14.14 | 7.69 | $-45.6 \%$ | Fail |

Passing windows 1

Building 8A - Dawes Street - Chadwell House DAYLIGHT

| Floor | Window ID | Existing VSC <br> (\%) | Proposed VSC (\%) | Difference <br> (\%) | Condition |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 3 F | 30 | 13.06 | 10.14 | -22.4\% | Fail |
| 3 F | 31 | 14.63 | 10.87 | -25.7\% | Fail |
| 3 F | 32 | 32.71 | 26.89 | -17.8\% | Pass |
| 3 F | 33 | 16.19 | 9.91 | -38.8\% | Fail |
| 3 F | 34 | 16.72 | 10.4 | -37.8\% | Fail |
| 3 F | 35 | 17.16 | 10.1 | -41.1\% | Fail |
| 3 F | 36 | 18.25 | 10.5 | -42.5\% | Fail |
| 3 F | 37 | 19.2 | 10.93 | -43.1\% | Fail |
| 3 F | 38 | 20.13 | 10.48 | -47.9\% | Fail |
| 3 F | 39 | 20.3 | 10.95 | -46.1\% | Fail |
| 3 F | 40 | 20.48 | 12.16 | -40.6\% | Fail |
| 3 F | 41 | 20.79 | 12.91 | -37.9\% | Fail |
|  | 12 | Passing windows |  |  | 1 |
| 4F | 42 | 30.99 | 27.36 | -11.7\% | Pass |
| 4F | 43 | 31.77 | 27.09 | -14.7\% | Pass |
| 4F | 44 | 32.76 | 27.22 | -16.9\% | Pass |
| 4F | 45 | 33.42 | 27.82 | -16.8\% | Pass |
| 4F | 46 | 34.27 | 27.95 | -18.4\% | Pass |
| 4F | 47 | 35.14 | 28.18 | -19.8\% | Pass |
| 4F | 48 | 35.99 | 28.13 | -21.8\% | Pass |
| 4F | 49 | 36.66 | 28.22 | -23.0\% | Pass |
| 4F | 50 | 36.99 | 27.94 | -24.5\% | Pass |
| 4F | 51 | 37.5 | 27.9 | -25.6\% | Pass |
| 4F | 52 | 38.1 | 28.68 | -24.7\% | Pass |
| 4F | 53 | 38.26 | 29.85 | -22.0\% | Pass |
|  | 12 | Passing windows |  |  | 12 |

Building 8A - Dawes Street - Chadwell House DAYLIGHT

| Floor | Window ID | Existing VSC <br> (\%) | Proposed VSC <br> (\%) | Difference <br> (\%) | Condition |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 5F | 54 | 15.15 | 12.24 | -19.2\% | Pass |
| 5 F | 55 | 16.32 | 13.09 | -19.8\% | Pass |
| 5F | 56 | 33.75 | 28.86 | -14.5\% | Pass |
| 5F | 57 | 17.45 | 12.27 | -29.7\% | Fail |
| 5 F | 58 | 18.42 | 11.8 | -35.9\% | Fail |
| 5F | 59 | 19.13 | 11.85 | -38.1\% | Fail |
| 5F | 60 | 19.6 | 11.93 | -39.1\% | Fail |
| 5F | 61 | 20.54 | 11.93 | -41.9\% | Fail |
| 5F | 62 | 21 | 12.01 | -42.8\% | Fail |
| ${ }_{5} \mathrm{~F}$ | 63 | 21 | 11.64 | -44.6\% | Fail |
| 5 F | 64 | 21.49 | 13.17 | -38.7\% | Fail |
| 5F | 65 | 21.2 | 13.96 | -34.2\% | Fail |
|  | 12 | Passing windows |  |  | 3 |
| 6F | 66 | 16.52 | 13.71 | -17.0\% | Pass |
| 6F | 67 | 17.32 | 14.12 | -18.5\% | Pass |
| 6F | 68 | 34.62 | 30.42 | -12.1\% | Pass |
| 6F | 69 | 18.13 | 12.98 | -28.4\% | Fail |
| 6F | 70 | 19.13 | 12.75 | -33.4\% | Fail |
| 6F | 71 | 19.59 | 12.75 | -34.9\% | Fail |
| 6F | 72 | 20.19 | 12.69 | -37.1\% | Fail |
| 6F | 73 | 21 | 12.53 | -40.3\% | Fail |
| 6 F | 74 | 21.11 | 12.23 | -42.1\% | Fail |
| 6F | 75 | 21.62 | 12.7 | -41.3\% | Fail |
| 6F | 76 | 21.41 | 14.22 | -33.6\% | Fail |
| 6 F | 77 | 21.59 | 14.34 | -33.6\% | Fail |
|  | 12 | Passing windows |  |  | 3 |

Building 8A - Dawes Street - Chadwell House DAYLIGHT

| Floor | Window ID | Existing VSC <br> (\%) | Proposed VSC (\%) | Difference <br> (\%) | Condition |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 7 F | 78 | 34.39 | 31.77 | -7.6\% | Pass |
| 7 F | 79 | 34.89 | 31.95 | -8.4\% | Pass |
| 7 F | 80 | 35.4 | 31.99 | -9.6\% | Pass |
| 7 F | 81 | 35.95 | 31.98 | -11.0\% | Pass |
| 7 F | 82 | 37.05 | 31.14 | -16.0\% | Pass |
| 7 F | 83 | 36.92 | 31.08 | -15.8\% | Pass |
| 7 F | 84 | 37.72 | 30.82 | -18.3\% | Pass |
| 7 F | 85 | 37.87 | 30.6 | -19.2\% | Pass |
| 7 F | 86 | 38.41 | 30.41 | -20.8\% | Pass |
| 7 F | 87 | 38.52 | 30.43 | -21.0\% | Pass |
| 7F | 88 | 39.05 | 31.39 | -19.6\% | Pass |
| 7 F | 89 | 39.07 | 31.92 | -18.3\% | Pass |
|  | 12 | Passing windows |  |  | 12 |
| 8F | 90 | 19.76 | 17.4 | -11.9\% | Pass |
| 8F | 91 | 19.8 | 17.71 | -10.6\% | Pass |
| 8F | 92 | 36.35 | 32.68 | -10.1\% | Pass |
| 8F | 93 | 21.32 | 17.33 | -18.7\% | Pass |
| 8F | 94 | 21.93 | 16.5 | -24.8\% | Fail |
| 8F | 95 | 22.17 | 16.54 | -25.4\% | Fail |
| 8F | 96 | 22.4 | 16.13 | -28.0\% | Fail |
| 8F | 97 | 22.6 | 16.24 | -28.1\% | Fail |
| 8F | 98 | 23.02 | 15.09 | -34.4\% | Fail |
| 8F | 99 | 23.3 | 15.7 | -32.6\% | Fail |
| 8F | 100 | 23.19 | 16.35 | -29.5\% | Fail |
| 8F | 101 | 22.87 | 17.4 | -23.9\% | Fail |
|  | 12 | Passing windows |  |  | 4 |
|  |  | Number of passing windows |  |  | 38 |

Building 8A - Dawes Street - Chadwell House SUNLIGHT

Floor | Window |
| :---: |
| ID |$\quad$ Window orientation

| Annual APSH | Winter APSH | Condition |
| :--- | :---: | :---: |
| $34.19 \%$ $35 \cdot 99 \%$ Pass <br> $35 \cdot 46 \%$ $35.79 \%$ Pass <br> $36.20 \%$ $38.37 \%$ Pass <br> $35 \cdot 51 \%$ $40.11 \%$ Pass <br> $35 \cdot 36 \%$ $43.12 \%$ Pass <br> $35.01 \%$ $44.15 \%$ Pass <br> $35 \cdot 77 \%$ $48.97 \%$ Pass <br> $38.50 \%$ $55.93 \%$ Pass <br> $42.34 \%$ $59.86 \%$ Pass |  |  |
| Passing windows | 9 |  |


| Annual APSH | Losses/ <br> Gains | Condition <br> (Annual) | Winter APSH | Losses/ <br> Gains | Condition <br> (Winter) |
| :--- | :---: | :---: | :---: | :---: | :---: |

Condiiton
Building 8A - Thurlow Street

| GF | 1 | SW |
| :---: | :---: | :---: |
| GF | 2 | SW |
| GF | 3 | SW |
| GF | 4 | SW |
| GF | 5 | SW |
| GF | 6 | SW |
| GF | 7 | SW |
| GF | 8 | SW |
| GF | 9 | SW |


| Existing condition |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 47.75\% | -28.4\% | Fail | 64.76\% | -44.4\% | Fail |
| 49.82\% | -28.8\% | Fail | 65.56\% | -45.4\% | Fail |
| 51.78\% | -30.1\% | Fail | 69.26\% | -44.6\% | Fail |
| 52.44\% | -32.3\% | Fail | 68.75\% | $-41.7 \%$ | Fail |
| 53.37\% | -33.7\% | Fail | 68.56\% | -37.1\% | Fail |
| 53.56\% | -34.6\% | Fail | 68.51\% | -35.6\% | Fail |
| 54.11\% | -33.9\% | Fail | 67.61\% | -27.6\% | Fail |
| 55.68\% | -30.9\% | Fail | 69.24\% | -19.2\% | Pass |
| 57.56\% | -26.4\% | Fail | 69.55\% | -13.9\% | Pass |


| Pass |
| :---: |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| 9 |


| IF | 10 | SW |
| :---: | :---: | :---: |
| IF | 11 | SW |
| IF | 12 | SW |
| IF | 13 | SW |
| IF | 14 | SW |
| IF | 15 | SW |
| IF | 16 | SW |
| IF | 17 | SW |
| IF | 18 | SW |
| IF | 19 | SW |


| $36.27 \%$ | $33.95 \%$ | Pass |
| :---: | :---: | :---: |
| $37.43 \%$ | $36.93 \%$ | Pass |
| $37.83 \%$ | $37.47 \%$ | Pass |
| $37.77 \%$ | $39.36 \%$ | Pass |
| $36.96 \%$ | $41.46 \%$ | Pass |
| $38.22 \%$ | $44.35 \%$ | Pass |
| $37.18 \%$ | $46.39 \%$ | Pass |
| $37.69 \%$ | $50.63 \%$ | Pass |
| $41.73 \%$ | $57.92 \%$ | Pass |
| $43.89 \%$ | $62.61 \%$ | Pass |


| $47.91 \%$ | $-24.3 \%$ | Fail | $60.79 \%$ | $-44.2 \%$ | Fail |
| :--- | :--- | :--- | :--- | :--- | :--- |
| $49.71 \%$ | $-24.7 \%$ | Fail | $65.21 \%$ | $-43.4 \%$ | Fail |
| $51.94 \%$ | $-27.2 \%$ | Fail | $67.30 \%$ | $-44 \cdot 3 \%$ | Fail |
| $53.12 \%$ | $-28.9 \%$ | Fail | $69.99 \%$ | $-43.8 \%$ | Fail |
| $54.68 \%$ | $-32.4 \%$ | Fail | $72.92 \%$ | $-43.1 \%$ | Fail |
| $55.84 \%$ | $-31.6 \%$ | Fail | $73.98 \%$ | $-40.1 \%$ | Fail |
| $55.06 \%$ | $-32.5 \%$ | Fail | $72.45 \%$ | $-36.0 \%$ | Fail |
| $55.26 \%$ | $-31.8 \%$ | Fail | $70.61 \%$ | $-28.3 \%$ | Fail |
| $57.79 \%$ | $-27.8 \%$ | Fail | $71.49 \%$ | $-19.0 \%$ | Pass |
| $59.15 \%$ | $-25.8 \%$ | Fail | $72.73 \%$ | $-13.9 \%$ | Pass |
| Passing windows |  |  |  |  |  |


| Pass |
| :--- |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| 10 |


| $2 F$ | 20 | $S W$ |
| :---: | :---: | :---: |
| $2 F$ | 21 | $S W$ |
| $2 F$ | 22 | $S W$ |
| $2 F$ | 23 | $S W$ |
| $2 F$ | 24 | $S W$ |
| $2 F$ | 25 | $S W$ |
| $2 F$ | 26 | $S W$ |
| $2 F$ | 27 | $S W$ |
| $2 F$ | 28 | $S W$ |
| $2 F$ | 29 | $S W$ |


| $36.30 \%$ | $34.10 \%$ | Pass |
| :---: | :---: | :---: |
| $14.07 \%$ | $13.66 \%$ | Fail |
| $14.07 \%$ | $13.66 \%$ | Fail |
| $13.89 \%$ | $14.43 \%$ | Fail |
| $15.03 \%$ | $17.60 \%$ | Fail |
| $14.53 \%$ | $19.02 \%$ | Fail |
| $13.96 \%$ | $21.44 \%$ | Fail |
| $14.32 \%$ | $24.60 \%$ | Fail |
| $16.38 \%$ | $28.96 \%$ | Fail |
| $12.89 \%$ | $22.38 \%$ | Fail |


| $47.90 \%$ | $-24.2 \%$ |
| :--- | :--- |
| $23.11 \%$ | $-39.1 \%$ |
| $23.11 \%$ | $-39.1 \%$ |
| $24.17 \%$ | $-42.5 \%$ |
| $25.24 \%$ | $-4.5 \%$ |
| $24.92 \%$ | $-41.7 \%$ |
| $24.80 \%$ | $-43.7 \%$ |
| $25.23 \%$ | $-43.2 \%$ |
| $26.84 \%$ | $-39.0 \%$ |
| $23.45 \%$ | $-45.0 \%$ |


| Fail | $60.84 \%$ |
| :--- | :--- |
| Fail | $34.78 \%$ |
| Fail | $34.78 \%$ |
| Fail | $37.17 \%$ |
| Fail | $38.79 \%$ |
| Fail | $38.96 \%$ |
| Fail | $39.28 \%$ |
| Fail | $39.50 \%$ |
| Fail | $40.92 \%$ |
| Fail | $32.60 \%$ |


| $-44.0 \%$ |
| :--- |
| $-60.7 \%$ |
| $-60.7 \%$ |
| $-61.2 \%$ |
| $-54.6 \%$ |
| $-51.2 \%$ |
| $-45.4 \%$ |
| $-37.7 \%$ |
| $-29.2 \%$ |
| $-31.3 \%$ |


| Pass |
| :---: |
| Fail |
| Fail |
| Fail |
| Fail |
| Fail |
| Fail |
| Fail |
| Fail |
| Fail |
| 1 |


| 3 F | 30 | sw |
| :---: | :---: | :---: |
| 3 F | 31 | sw |
| 3 F | 32 | SW |
| 3 F | 33 | sw |
| 3 F | 34 | sw |
| 3 F | 35 | sw |
| 3 F | 36 | sw |
| 3 F | 37 | sw |
| 3 F | 38 | sw |
| 3 F | 39 | sw |
| 3 F | 40 | sw |
| 3 F | 41 | sw |
|  | 12 |  |


| $13.28 \%$ | $12.09 \%$ | Fail |
| :--- | :--- | :--- |
| $13.28 \%$ | $12.09 \%$ | Fail |
| $36.40 \%$ | $34.20 \%$ | Pass |
| $12.36 \%$ | $12.53 \%$ | Fail |
| $14.07 \%$ | $13.66 \%$ | Fail |
| $13.89 \%$ | $14.43 \%$ | Fail |
| $15.03 \%$ | $17.60 \%$ | Fail |
| $14.53 \%$ | $19.02 \%$ | Fail |
| $13.96 \%$ | $21.44 \%$ | Fail |
| $14.32 \%$ | $24.60 \%$ | Fail |
| $16.38 \%$ | $28.96 \%$ | Fail |
| $12.89 \%$ | $22.38 \%$ | Fail |


| 18.23\% | -27.2\% | Fail | 24.96\% | $-51.6 \%$ | Fail |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 18.23\% | -27.2\% | Fail | 24.96\% | -51.6\% | Fail |
| 48.10\% | -24.3\% | Fail | 60.90\% | $-43.8 \%$ | Fail |
| 20.47\% | -39.6\% | Fail | 32.66\% | -61.6\% | Fail |
| 23.11\% | -39.1\% | Fail | 34.78\% | -60.7\% | Fail |
| 24.17\% | $-42.5 \%$ | Fail | 37.17\% | -61.2\% | Fail |
| 25.24\% | $-40.5 \%$ | Fail | 38.79\% | -54.6\% | Fail |
| 24.92\% | $-41.7 \%$ | Fail | 38.96\% | -51.2\% | Fail |
| 24.80\% | $-43.7 \%$ | Fail | 39.28\% | -45.4\% | Fail |
| 25.23\% | $-43.2 \%$ | Fail | 39.50\% | -37.7\% | Fail |
| 26.84\% | -39.0\% | Fail | 40.92\% | -29.2\% | Fail |
| 23.45\% | -45.0\% | Fail | 32.60\% | -31.3\% | Fail |


| Fail |
| :--- | :--- |
| Fail |
| Pass |
| Fail |
| Fail |
| Fail |
| Fail |
| Fail |
| Fail |
| Fail |
| Fail |
| Fail |


| 4 F | 42 | $5 W$ |
| :--- | :--- | :--- |
| 4 F | 43 | $5 W$ |
| 4 F | 44 | $5 W$ |
| 4 F | 45 | $5 W$ |
| 4 F | 46 | $5 W$ |
| 4 F | 47 | $5 W$ |
| 4 F | 48 | $5 W$ |
| 4 F | 49 | $5 W$ |
| 4 F | 50 | $5 W$ |
| 4 F | 51 | $5 W$ |
| 4 F | 52 | $5 W$ |
| 4 F | 53 | $5 W$ |


| $44 \cdot 17 \%$ | $32.63 \%$ | Pass |
| :---: | :---: | :---: |
| $44 \cdot 36 \%$ | $36.06 \%$ | Pass |
| $44.18 \%$ | $37.82 \%$ | Pass |
| $44 \cdot 38 \%$ | $38.08 \%$ | Pass |
| $44 \cdot 13 \%$ | $39.09 \%$ | Pass |
| $43 \cdot 10 \%$ | $40.04 \%$ | Pass |
| $44.83 \%$ | $44.36 \%$ | Pass |
| $43.00 \%$ | $45 \cdot 34 \%$ | Pass |
| $40.55 \%$ | $46.34 \%$ | Pass |
| $41.37 \%$ | $50.61 \%$ | Pass |
| $44.08 \%$ | $58.07 \%$ | Pass |
| $46.06 \%$ | $65.83 \%$ | Pass |


| $51.71 \%$ | $-14.6 \%$ | Pass | $52.36 \%$ | $-37.7 \%$ | Fail |
| :--- | :--- | :--- | :--- | :--- | :--- |
| $52.87 \%$ | $-16.1 \%$ | Pass | $57.27 \%$ | $-37.0 \%$ | Fail |
| $54.02 \%$ | $-18.2 \%$ | Pass | $61.79 \%$ | $-38.8 \%$ | Fail |
| $55.75 \%$ | $-20.4 \%$ | Fail | $65.89 \%$ | $-42.2 \%$ | Fail |
| $56.46 \%$ | $-21.8 \%$ | Fail | $67.38 \%$ | $-42.0 \%$ | Fail |
| $57.38 \%$ | $-24.9 \%$ | Fail | $70.60 \%$ | $-43.3 \%$ | Fail |
| $60.05 \%$ | $-25.3 \%$ | Fail | $75.38 \%$ | $-41.2 \%$ | Fail |
| $59.34 \%$ | $-27.5 \%$ | Fail | $75.76 \%$ | $-40.2 \%$ | Fail |
| $59.07 \%$ | $-31.4 \%$ | Fail | $76.08 \%$ | $-39.1 \%$ | Fail |
| $60.34 \%$ | $-31.4 \%$ | Fail | $75.98 \%$ | $-33.4 \%$ | Fail |
| $61.09 \%$ | $-27.8 \%$ | Fail | $76.74 \%$ | $-24.3 \%$ | Fail |
| $61.92 \%$ | $-25.6 \%$ | Fail | $78.18 \%$ | $-15.8 \%$ | Pass |


| Pass |
| :--- |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| 12 |


| 5 F | 54 | $S W$ |
| :--- | :--- | :--- |
| 5 F | 55 | SW |
| 5 F | 56 | SW |
| 5 F | 57 | SW |
| 5 F | 58 | SW |
| 5 F | 59 | SW |
| 5 F | 60 | SW |
| 5 F | 61 | SW |
| 5 F | 62 | SW |
| 5 F | 63 | SW |
| 5 F | 64 | SW |
| 5 F | 65 | SW |


| $15.37 \%$ | $13.16 \%$ | Fail |
| :--- | :--- | :--- |
| $15.37 \%$ | $13.16 \%$ | Fail |
| $44.18 \%$ | $37.82 \%$ | Pass |
| $16.48 \%$ | $17.37 \%$ | Fail |
| $18.23 \%$ | $18.17 \%$ | Fail |
| $17.78 \%$ | $18.99 \%$ | Fail |
| $18.67 \%$ | $21.10 \%$ | Fail |
| $17.08 \%$ | $20.72 \%$ | Fail |
| $16.22 \%$ | $21.55 \%$ | Fail |
| $17.05 \%$ | $24.57 \%$ | Fail |
| $18.17 \%$ | $29.36 \%$ | Fail |
| $15.30 \%$ | $24.85 \%$ | Fail |
| Passing windows |  | 1 |


| 19.98\% | -23.1\% | Fail | 25.22\% | -47.8\% | Fail |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 21.03\% | -26.9\% | Fail | 22.71\% | -42.1\% | Fail |
| 54.02\% | -18.2\% | Pass | 61.72\% | -38.7\% | Fail |
| 23.17\% | -28.9\% | Fail | 33.94\% | -48.8\% | Fail |
| 25.72\% | -29.1\% | Fail | 35.64\% | -49.0\% | Fail |
| 26.51\% | -32.9\% | Fail | 38.60\% | -50.8\% | Fail |
| 27.57\% | -32.3\% | Fail | 40.43\% | -47.8\% | Fail |
| 26.74\% | -36.1\% | Fail | 40.02\% | -48.2\% | Fail |
| 26.79\% | -39.5\% | Fail | 40.51\% | -46.8\% | Fail |
| 27.46\% | -37.9\% | Fail | 40.56\% | -39.4\% | Fail |
| 27.86\% | -34.8\% | Fail | 41.08\% | -28.5\% | Fail |
| 24.46\% | -37.4\% | Fail | 32.60\% | -23.8\% | Fail |

[^2]Building 8A - Dawes Street - Chadwell House SUNLIGHT

| Floor | Window ID | Window orientation | Annual APSH | Winter APSH | Condition | Annual APSH | Losses/ Gains | Condition (Annual) | Winter APSH | Losses/ Gains | Condition (Winter) | Condiiton |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 6 F | 66 | SW | 16.55\% | 15.35\% | Fail | 21.07\% | -21.5\% | Fail | 27.19\% | -43.5\% | Fail | Fail |
| 6 F | 67 | SW | 16.55\% | 15.35\% | Fail | 21.07\% | -21.5\% | Fail | 27.19\% | -43.5\% | Fail | Fail |
| 6 F | 68 | SW | 44.18\% | 37.82\% | Pass | 54.02\% | $-18.2 \%$ | Pass | 61.72\% | $-38.7 \%$ | Fail | Pass |
| 6 F | 69 | SW | 16.48\% | 16.07\% | Fail | 23.65\% | -30.3\% | Fail | 34.09\% | -52.9\% | Fail | Fail |
| 6 F | 70 | SW | 18.23\% | 15.87\% | Fail | 26.63\% | -31.5\% | Fail | 36.67\% | $-56.7 \%$ | Fail | Fail |
| 6 F | 71 | SW | 17.70\% | 16.14\% | Fail | 27.21\% | -35.0\% | Fail | 38.97\% | -58.6\% | Fail | Fail |
| 6 F | 72 | SW | 18.98\% | 19.37\% | Fail | 28.17\% | -32.6\% | Fail | 40.43\% | -52.1\% | Fail | Fail |
| 6 F | 73 | SW | 17.60\% | 20.22\% | Fail | 27.26\% | -35.4\% | Fail | 40.02\% | $-49.5 \%$ | Fail | Fail |
| 6 F | 74 | SW | 17.01\% | 21.89\% | Fail | 27.40\% | -37.9\% | Fail | 40.86\% | $-46.4 \%$ | Fail | Fail |
| 6 F | 75 | SW | 17.79\% | 25.64\% | Fail | 28.17\% | -36.8\% | Fail | 41.61\% | -38.4\% | Fail | Fail |
| 6 F | 76 | SW | 18.39\% | 29.24\% | Fail | 28.07\% | -34.5\% | Fail | 41.34\% | -29.3\% | Fail | Fail |
| 6 F | 77 | SW | 14.76\% | 22.94\% | Fail | 24.56\% | -39.9\% | Fail | 32.60\% | -29.6\% | Fail | Fail |
|  | 12 |  | Passing windows |  | 1 | Passing windows |  |  |  |  |  | 1 |
| 7 F | 78 | SW | 50.03\% | 38.26\% | Pass | 56.77\% | -11.8\% | Pass | 55.76\% | -31.4\% | Fail | Pass |
| 7 F | 79 | SW | 50.24\% | 38.80\% | Pass | 57.98\% | $-13.3 \%$ | Pass | 59.09\% | -34.3\% | Fail | Pass |
| 7F | 80 | SW | 50.96\% | 40.71\% | Pass | 59.61\% | -14.5\% | Pass | 63.37\% | -35.8\% | Fail | Pass |
| 7 F | 81 | sw | 51.88\% | 43.12\% | Pass | 60.71\% | -14.5\% | Pass | 66.22\% | -34.9\% | Fail | Pass |
| 7F | 82 | SW | 52.00\% | 45.49\% | Pass | 61.97\% | -16.1\% | Pass | 70.52\% | -35.5\% | Fail | Pass |
| 7 F | 83 | sw | 51.32\% | 45.47\% | Pass | 62.98\% | -18.5\% | Pass | 73.98\% | -38.5\% | Fail | Pass |
| 7 F | 84 | sw | 50.97\% | 46.36\% | Pass | 63.61\% | -19.9\% | Pass | 76.37\% | -39.3\% | Fail | Pass |
| 7F | 85 | SW | 48.53\% | 46.22\% | Pass | 62.70\% | -22.6\% | Fail | 76.43\% | -39.5\% | Fail | Pass |
| 7 F | 86 | sw | 47.65\% | 46.38\% | Pass | 62.93\% | -24.3\% | Fail | 76.37\% | $-39.3 \%$ | Fail | Pass |
| 7 F | 87 | SW | 48.57\% | 52.38\% | Pass | 63.90\% | -24.0\% | Fail | 77.78\% | -32.7\% | Fail | Pass |
| $\begin{aligned} & 7 \mathrm{~F} \\ & 7 \mathrm{~F} \\ & \hline \end{aligned}$ | 88 | sw | 49.22\% | 59.51\% | Pass | 64.05\% | -23.2\% | Fail | 78.18\% | -23.9\% | Fail | Pass |
|  | 89 | sw | $50.61 \%$ $65.80 \%$ <br> Passing windows  |  | Pass | $64.38 \%$ $-21.4 \%$ |  | Fail | 78.18\% | -15.8\% | Pass | Pass |
|  | 12 |  | Passing windows |  | 12 | Passing windows |  |  |  |  |  | 12 |
| 8 F | 90 | SW | 20.15\% | 21.49\% | Fail | 23.35\% | $-13.7 \%$ | Pass | 29.85\% | -28.0\% | Fail | Fail |
| 8 F | 91 | SW | 20.88\% | 17.57\% | Fail | 24.10\% | -13.4\% | Pass | 25.99\% | $-32.4 \%$ | Fail | Fail |
| 8 F | 92 | sw | 50.96\% | 40.71\% | Pass | 59.61\% | $-14.5 \%$ | Pass | 63.37\% | -35.8\% | Fail | Pass |
| 8 F | 93 | sw | 20.53\% | 22.05\% | Fail | 25.24\% | $-18.7 \%$ | Pass | 34.37\% | -35.8\% | Fail | Fail |
| 8 F | 94 | sw | 22.40\% | 21.68\% | Fail | 28.21\% | -20.6\% | Fail | 36.53\% | $-40.7 \%$ | Fail | Fail |
| 8 F | 95 | sw | 21.26\% | 20.31\% | Fail | 28.32\% | -24.9\% | Fail | 37.68\% | $-46.1 \%$ | Fail | Fail |
| 8 F | 96 | sw | 21.38\% | 21.26\% | Fail | 28.84\% | -25.9\% | Fail | 39.02\% | -45.5\% | Fail | Fail |
| 8 F | 97 | sw | 20.23\% | 21.14\% | Fail | 28.53\% | -29.1\% | Fail | 39.11\% | -45.9\% | Fail | Fail |
| 8 F | 98 | SW | 20.03\% | 21.70\% | Fail | 28.67\% | -30.1\% | Fail | 39.32\% | $-44.8 \%$ | Fail | Fail |
| 8 F | 99 | sw | 20.85\% | 25.23\% | Fail | 29.26\% | -28.7\% | Fail | 40.13\% | -37.1\% | Fail | Fail |
| 8 F | 100 | sw | 21.56\% | 28.81\% | Fail | 29.12\% | -26.0\% | Fail | 39.75\% | -27.5\% | Fail | Fail |
| 8 F | 101 | SW | 18.49\% | 23.65\% | Fail | 25.49\% | -27.5\% | Fail | 30.89\% | -23.4\% | Fail | Fail |
|  | 12 |  | Passing windows |  |  | Passing windows |  |  |  |  |  | 1 |
|  |  |  |  |  |  | Building 1 - Number of passing windows |  |  |  |  |  | 48 |

## Building 8B - Thurlow Street



THURLOW STREET


| Floor $\quad$ Window ID | Existing VSC <br> $(\%)$ | Proposed VSC <br> $(\%)$ | Difference <br> $(\%)$ | Condition |
| :---: | :---: | :---: | :---: | :---: |

Building 8B - Thurlow Street

| GF | 1 |
| :---: | :---: |
| GF | 2 |
| GF | 3 |
| GF | 4 |
| GF | 5 |
| GF | 6 |
| GF | 7 |
| GF | 8 |
| GF | 9 |
| GF | 10 |


| 34.93 | 26.08 | $-25.3 \%$ | Fail |
| :---: | :---: | :---: | :---: |
| 36.25 | 27.67 | $-23.7 \%$ | Pass |
| 36.75 | 29.16 | $-20.7 \%$ | Pass |
| 36.93 | 30.27 | $-18.0 \%$ | Pass |
| 37.4 | 31.14 | $-16.7 \%$ | Pass |
| 37.5 | 31.88 | $-15.0 \%$ | Pass |
| 34.39 | 33.14 | $-3.6 \%$ | Pass |
| 37.42 | 33.64 | $-10.1 \%$ | Pass |
| 37.16 | 33.93 | $-8.7 \%$ | Pass |
| 37.27 | 35.4 | $-5.0 \%$ | Pass |

Passing windows 9

| 1 F | 11 |
| :---: | :---: |
| 1 F | 12 |
| 1 F | 13 |
| 1 F | 14 |
| 1 F | 15 |
| 1 F | 16 |
| 1 F | 17 |
| 1 F | 18 |
| 1 F | 19 |
| 1 F | 20 |
| 1 F | 21 |


| 36.77 | 28.16 | $-23.4 \%$ | Pass |
| :---: | :---: | :---: | :---: |
| 36.49 | 27.84187 | $-23.7 \%$ | Pass |
| 37.03 | 29.36479 | $-20.7 \%$ | Pass |
| 37.36 | 30.6352 | $-18.0 \%$ | Pass |
| 37.07 | 30.87931 | $-16.7 \%$ | Pass |
| 37.78 | 32.113 | $-15.0 \%$ | Pass |
| 37.35 | 35.4825 | $-5.0 \%$ | Pass |
| 37.33 | 34.3436 | $-8.0 \%$ | Pass |
| 37.76 | 34.47488 | $-8.7 \%$ | Pass |
| 37.69 | 34.48635 | $-8.5 \%$ | Pass |
| 38.56 | 36.632 | $-5.0 \%$ | Pass |

Passing windows 11

Building 8B - Thurlow Street
DAYLIGHT

| Floor | Window ID | Existing VSC (\%) | Proposed VSC (\%) | Difference (\%) | Condition |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 2 F | 22 | 37.74 | 28.67 | -24.0\% | Pass |
| 2 F | 23 | 20.06 | 14.4 | -28.2\% | Fail |
| 2 F | 24 | 21.26 | 15.78 | -25.8\% | Fail |
| 2 F | 25 | 20.98 | 16.76 | -20.1\% | Fail |
| 2 F | 26 | 21.57 | 17.8 | -17.5\% | Pass |
| 2F | 27 | 21.57 | 17.66 | -18.1\% | Pass |
| 2 F | 28 | 21.39 | 19.19 | -10.3\% | Pass |
| 2 F | 29 | 21.51 | 19.17 | -10.9\% | Pass |
| 2 F | 30 | 21.78 | 20.05 | -7.9\% | Pass |
| 2 F | 31 | 21.34 | 20.38 | -4.5\% | Pass |
| 2 F | 32 | 20.89 | 19.9 | -4.7\% | Pass |
|  | 11 | Passing windows |  |  | 8 |
| 3 F | 33 | 38.17 | 29.68 | -22.2\% | Pass |
| 3 F | 34 | 21.35 | 15.08 | -29.4\% | Fail |
| 3 F | 35 | 21.26 | 16.87 | -20.6\% | Fail |
| 3 F | 36 | 21.8 | 17.51 | -19.7\% | Pass |
| 3 F | 37 | 21.59 | 18.32 | -15.1\% | Pass |
| 3 F | 38 | 21.89 | 19.24 | -12.1\% | Pass |
| 3 F | 39 | 21.71 | 19.67 | -9.4\% | Pass |
| 3 F | 40 | 21.68 | 20.02 | -7.7\% | Pass |
| 3 F | 41 | 22.28 | 20.47 | -8.1\% | Pass |
| 3 F | 42 | 22.28 | 20.45 | -8.2\% | Pass |
| 3 F | 43 | 21.37 | 21.12 | -1.2\% | Pass |
| 3 F | 44 | 21.26 | 20.85 | -1.9\% | Pass |
|  | 12 | Passing windows |  |  | 10 |

Building 8B - Thurlow Street
DAYLIGHT

| Floor | Window ID | Existing VSC (\%) | Proposed VSC (\%) | Difference (\%) | Condition |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 4F | 45 | 38.63 | 30.75 | -20.4\% | Pass |
| 4F | 46 | 38.72 | 31.72 | -18.1\% | Pass |
| 4F | 47 | 38.93 | 33.11 | -14.9\% | Pass |
| 4F | 48 | 38.97 | 33.9 | -13.0\% | Pass |
| 4F | 49 | 39.04 | 34.62 | -11.3\% | Pass |
| 4F | 50 | 37.08 | 35.18 | -5.1\% | Pass |
| 4F | 51 | 38.81 | 35.77 | -7.8\% | Pass |
| 4F | 52 | 38.76 | 36.22 | -6.6\% | Pass |
| 4F | 53 | 38.98 | 36.79 | -5.6\% | Pass |
| 4F | 54 | 38.91 | 37.09 | -4.7\% | Pass |
| 4F | 55 | 38.92 | 38.11 | $-2.1 \%$ | Pass |
| 4F | 56 | 38.87 | 37.28 | -4.1\% | Pass |
|  | 12 | Passing windows |  |  | 12 |
| 5 F | 57 | 38.86 | 31.09 | -20.0\% | Pass |
| 5 F | 58 | 21.73 | 15.99 | -26.4\% | Fail |
| 5 F | 59 | 22.3 | 26.58 | 19.2\% | Pass |
| 5 F | 60 | 22.17 | 26.09 | 17.7\% | Pass |
| 5 F | 61 | 22.45 | 25.75 | 14.7\% | Pass |
| 5 F | 62 | 22.01 | 25.25 | 14.7\% | Pass |
| 5F | 63 | 22.65 | 24.71 | 9.1\% | Pass |
| 5 F | 64 | 22.45 | 24.02 | 7.0\% | Pass |
| 5 F | 65 | 22.61 | 23.74 | 5.0\% | Pass |
| 5 F | 66 | 22.46 | 23.74 | 5.7\% | Pass |
| 5 F | 67 | 22.39 | 23.17 | 3.5\% | Pass |
| 5 F | 68 | 21.5 | 21.78 | 1.3\% | Pass |
|  | 12 | Passing windows |  |  | 11 |

Building 8B - Thurlow Street
DAYLIGHT

| Floor | Window ID | Existing VSC (\%) | Proposed VSC (\%) | Difference (\%) | Condition |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 6F | 69 | 39.14 | 31.9 | -18.5\% | Pass |
| 6F | 70 | 21.81 | 16.06 | -26.4\% | Fail |
| 6 F | 71 | 22.59 | 18.25 | -19.2\% | Pass |
| 6 F | 72 | 22.17 | 18.25 | -17.7\% | Pass |
| 6F | 73 | 22.92 | 19.55 | -14.7\% | Pass |
| 6F | 74 | 22.29 | 20.27 | -9.1\% | Pass |
| 6 F | 75 | 22.66 | 21.07 | -7.0\% | Pass |
| 6F | 76 | 22.45 | 21.33 | -5.0\% | Pass |
| 6F | 77 | 22.65 | 21.36 | -5.7\% | Pass |
| 6F | 78 | 22.61 | 21.81 | -3.5\% | Pass |
| 6F | 79 | 22.39 | 22.11 | -1.3\% | Pass |
| 6F | 80 | 21.62 | 21.63 | 0.0\% | Pass |
|  | 12 | Passing windows |  |  | 11 |
| 7 F | 81 | 39.11 | 32.76 | -16.2\% | Pass |
| 7 F | 82 | 39.51 | 33.65 | -14.8\% | Pass |
| 7 F | 83 | 39.27 | 34.43 | -12.3\% | Pass |
| 7 F | 84 | 39.75 | 36.09 | -9.2\% | Pass |
| 7 F | 85 | 39.21 | 36.47 | -7.0\% | Pass |
| 7 F | 86 | 39.41 | 36.95 | -6.2\% | Pass |
| 7 F | 87 | 39.39 | 37.03 | -6.0\% | Pass |
| 7 F | 88 | 39.53 | 37.73 | -4.6\% | Pass |
| 7 F | 89 | 39.49 | 37.71 | -4.5\% | Pass |
| 7 F | 90 | 40.17 | 38.46 | -4.3\% | Pass |
| 7 F | 91 | 38.92 | 38.23 | -1.8\% | Pass |
| 7 F | 92 | 38.87 | 38.16 | -1.8\% | Pass |
|  | 12 | Passing windows |  |  | 12 |


| Floor | Window ID | Existing VSC (\%) | Proposed VSC (\%) | Difference (\%) | Condition |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 8F | 93 | 39.32 | 33.49 | -14.8\% | Pass |
| 8F | 94 | 19.0785 | 16.59 | -13.0\% | Pass |
| 8F | 95 | 21.81 | 18.45 | -15.4\% | Pass |
| 8F | 96 | 22.59 | 18.83 | -16.6\% | Pass |
| 8F | 97 | 22.17 | 19.68 | -11.2\% | Pass |
| 8F | 98 | 22.92 | 20.06 | -12.5\% | Pass |
| 8F | 99 | 22.66 | 20.5 | -9.5\% | Pass |
| 8F | 100 | 22.45 | 20.91 | -6.9\% | Pass |
| 8F | 101 | 22.65 | 20.93 | -7.6\% | Pass |
| 8F | 102 | 22.61 | 20.23 | -10.5\% | Pass |
| 8F | 103 | 22.39 | 20.57 | -8.1\% | Pass |
| 8F | 104 | 21.62 | 20.33 | -6.0\% | Pass |
| 12 |  | Passing windows |  |  | 12 |
|  |  | Number of passing windows |  |  | 96 |



Building 8B - Thurlow Street SUNLIGHT

| Floor | Window <br> ID | Window orientation |
| :---: | :---: | :---: |
| 6 F | 69 | SW |
| 6 F | 70 | SW |
| 6 F | 71 | SW |
| 6 F | 72 | SW |
| 6 F | 73 | SW |
| 6 F | 74 | SW |
| 6 F | 75 | SW |
| 6 F | 76 | SW |
| 6 F | 77 | SW |
| 6 F | 78 | SW |
| 6 F | 79 | SW |
| 6 F | 80 | SW |


| Annual APSH | Winter APSH | Condition |
| :--- | :---: | :---: |
| $50.24 \%$ $69.34 \%$ Pass <br> $20.97 \%$ $38.89 \%$ Fail <br> $21.54 \%$ $38.37 \%$ Fail <br> $23.47 \%$ $40.15 \%$ Fail <br> $24.14 \%$ $40.27 \%$ Fail <br> $25.04 \%$ $40.87 \%$ Pass <br> $25.73 \%$ $41.72 \%$ Pass <br> $25.90 \%$ $39.65 \%$ Pass <br> $26.44 \%$ $39.83 \%$ Pass <br> $26.91 \%$ $39.96 \%$ Pass <br> $27.22 \%$ $40.14 \%$ Pass <br> $23.85 \%$ $30.20 \%$ Fail |  |  |
| Passing windows |  | 7 |


| Annual APSH | Losses/ <br> Gains | Condition <br> (Annual) | Winter APSH | Losses/ <br> Gains | Condition <br> (Winter) |
| :--- | :--- | :--- | :--- | :--- | :--- |
| $63.71 \%$ $-21.1 \%$ Fail $78.18 \%$ $-11.3 \%$ <br> $27.45 \%$ $-23.6 \%$ Fail $41.44 \%$ $-6.2 \%$ <br> $29.43 \%$ $-26.8 \%$ Fail $40.56 \%$ $-5.4 \%$ <br> $29.44 \%$ $-20.3 \%$ Fail $40.59 \%$ $-1.1 \%$ <br> $29.32 \%$ $-17.7 \%$ Pass $40.27 \%$ Pass <br> $29.56 \%$ $-15.3 \%$ Pass $40.87 \%$ $0.0 \%$ <br> $29.84 \%$ $-13.8 \%$ Pass $41.72 \%$ Pass <br> $29.18 \%$ $-11.2 \%$ Pass $39.65 \%$ $0.0 \%$ <br> $29.64 \%$ $-10.8 \%$ Pass $39.83 \%$ $0.0 \%$ <br> $30.23 \%$ $-11.0 \%$ Pass $39.96 \%$ $0.0 \%$ <br> $30.31 \%$ $-10.2 \%$ Pass $40.14 \%$ $0.0 \%$ <br> $26.11 \%$ $-8.7 \%$ Pass $30.20 \%$ Pass |  |  |  |  |  |
| Passing windows |  |  |  | Pass |  |

Condiiton

| 7F | 81 | SW |
| :---: | :---: | :---: |
| 7 F | 82 | sw |
| 7 F | 83 | sw |
| 7F | 84 | sw |
| 7 F | 85 | sw |
| 7F | 86 | sw |
| 7F | 87 | sw |
| 7F | 88 | sw |
| 7F | 89 | sw |
| 7 F | 90 | sw |
| 7F | 91 | sw |
| 7F | 92 | sw |


| $53.60 \%$ | $69.86 \%$ | Pass |
| :--- | :---: | :---: |
| $54.59 \%$ | $73.91 \%$ | Pass |
| $54.67 \%$ | $74.14 \%$ | Pass |
| $56.89 \%$ | $75.97 \%$ | Pass |
| $57.45 \%$ | $75.91 \%$ | Pass |
| $58.30 \%$ | $76.43 \%$ | Pass |
| $60.36 \%$ | $78.18 \%$ | Pass |
| $59.81 \%$ | $75.89 \%$ | Pass |
| $60.00 \%$ | $74.90 \%$ | Pass |
| $60.25 \%$ | $75.36 \%$ | Pass |
| $61.57 \%$ | $76.54 \%$ | Pass |
| $60.81 \%$ | $71.85 \%$ | Pass |


| $65.63 \%$ | $-18.3 \%$ | Pass | $78.18 \%$ | $-10.6 \%$ | Pass |
| :--- | :--- | :--- | :--- | :--- | :--- |
| $65.18 \%$ | $-16.2 \%$ | Pass | $76.36 \%$ | $-3.2 \%$ | Pass |
| $64.70 \%$ | $-15.5 \%$ | Pass | $75.09 \%$ | $-1.3 \%$ | Pass |
| $64.48 \%$ | $-11.8 \%$ | Pass | $74.52 \%$ | $1.9 \%$ | Pass |
| $64.31 \%$ | $-10.7 \%$ | Pass | $74.09 \%$ | $2.5 \%$ | Pass |
| $64.45 \%$ | $-9.5 \%$ | Pass | $74.61 \%$ | $2.4 \%$ | Pass |
| $65.51 \%$ | $-7.9 \%$ | Pass | $76.36 \%$ | $2.4 \%$ | Pass |
| $64.84 \%$ | $-7.8 \%$ | Pass | $74.07 \%$ | $2.5 \%$ | Pass |
| $64.46 \%$ | $-6.9 \%$ | Pass | $73.08 \%$ | $2.5 \%$ | Pass |
| $64.72 \%$ | $-6.9 \%$ | Pass | $73.53 \%$ | $2.5 \%$ | Pass |
| $65.09 \%$ | $-5.4 \%$ | Pass | $74.72 \%$ | $2.4 \%$ | Pass |
| $63.91 \%$ | $-4.9 \%$ | Pass | $71.85 \%$ | $0.0 \%$ | Pass |
| Passing windows |  |  |  |  |  |


| Pass |
| :--- |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| 12 |


| 8 F | 93 | $5 W$ |
| :---: | :---: | :---: |
| 8 F | 94 | $5 W$ |
| 8 F | 95 | $5 W$ |
| 8 F | 96 | $5 W$ |
| 8 F | 97 | $5 W$ |
| 8 F | 98 | $5 W$ |
| 8 F | 99 | $5 W$ |
| 8 F | 100 | $5 W$ |
| 8 F | 101 | $5 W$ |
| 8 F | 102 | $5 W$ |
| 8 F | 103 | $5 W$ |
| 8 F | 104 | $5 W$ |


| $50.24 \%$ | $69.34 \%$ | Pass |
| :---: | :---: | :---: |
| $20.97 \%$ | $38.89 \%$ | Fail |
| $21.54 \%$ | $38.37 \%$ | Fail |
| $23.47 \%$ | $40.15 \%$ | Fail |
| $24.14 \%$ | $40.27 \%$ | Fail |
| $25.04 \%$ | $40.87 \%$ | Pass |
| $25.73 \%$ | $41.72 \%$ | Pass |
| $25.90 \%$ | $39.65 \%$ | Pass |
| $26.44 \%$ | $39.83 \%$ | Pass |
| $26.91 \%$ | $39.96 \%$ | Pass |
| $27.22 \%$ | $40.14 \%$ | Pass |
| $23.85 \%$ | $30.20 \%$ | Fail |


| $66.33 \%$ | $-24.3 \%$ | Fail | $78.18 \%$ | $-11.3 \%$ | Pass |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $27.45 \%$ | $-23.6 \%$ | Fail | $41.44 \%$ | $-6.2 \%$ | Pass |
| $29.43 \%$ | $-26.8 \%$ | Fail | $40.56 \%$ | $-5.4 \%$ | Pass |
| $29.44 \%$ | $-20.3 \%$ | Fail | $40.59 \%$ | $-1.1 \%$ | Pass |
| $29.32 \%$ | $-17.7 \%$ | Pass | $40.27 \%$ | $0.0 \%$ | Pass |
| $29.56 \%$ | $-15.3 \%$ | Pass | $40.87 \%$ | $0.0 \%$ | Pass |
| $29.84 \%$ | $-13.8 \%$ | Pass | $41.72 \%$ | $0.0 \%$ | Pass |
| $29.18 \%$ | $-11.2 \%$ | Pass | $39.65 \%$ | $0.0 \%$ | Pass |
| $29.64 \%$ | $-10.8 \%$ | Pass | $39.83 \%$ | $0.0 \%$ | Pass |
| $30.23 \%$ | $-11.0 \%$ | Pass | $39.96 \%$ | $0.0 \%$ | Pass |
| $30.31 \%$ | $-10.2 \%$ | Pass | $40.14 \%$ | $0.0 \%$ | Pass |
| $26.11 \%$ | $-8.7 \%$ | Pass | $30.20 \%$ | $0.0 \%$ | Pass |


| Pass |
| :--- |
| Fail |
| Fail |
| Fail |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| 9 |
| 87 |

## Building 8C - Thurlow Street

THURLOW STREET

Floor Window ID

| Existing VSC |
| :---: | :---: | :---: |
| (\%) |$\quad$| Proposed VSC |
| :---: |
| (\%) |$\quad$| Difference |
| :---: |
| (\%) |

Condition

## Building 8C - Thurlow Street

| GF | 1 |  |  |
| :---: | :---: | :---: | :---: |
| GF | 2 |  |  |
| GF | 3 |  |  |
| GF | 4 |  |  |
| GF | 5 |  |  |
| GF | 6 |  |  |
| GF | 7 |  |  |
| GF | 8 |  |  |
| GF | 10 |  |  |
|  |  |  |  |


| 37.39 | 35.41 | $-5.3 \%$ | Pass |
| :---: | :---: | :---: | :---: |
| 36.71 | 38.66 | $5.3 \%$ | Pass |
| 37.04 | 35.05 | $-5.4 \%$ | Pass |
| 37.43 | 35.59 | $-4.9 \%$ | Pass |
| 37.12 | 36.18 | $-2.5 \%$ | Pass |
| 37.31 | 36.33 | $-2.6 \%$ | Pass |
| 37.69 | 36.68 | $-2.7 \%$ | Pass |
| 37.62 | 36.86 | $-2.0 \%$ | Pass |
| 37.87 | 36.85 | $-2.7 \%$ | Pass |
| 37.59 | 36.85 | $-2.0 \%$ | Pass |


| 1 F | 11 |
| :---: | :---: |
| 1 F | 12 |
| 1 F | 13 |
| 1 F | 14 |
| 1 F | 15 |
| 1 F | 16 |
| 1 F | 17 |
| 1 F | 18 |
| 1 F | 19 |
| 1 F | 20 |


| 38.65 | 36.38 | $-5.9 \%$ | Pass |
| :--- | :--- | :--- | :--- |
| 38.06 | 36.23 | $-4.8 \%$ | Pass |
| 37.98 | 36.68 | $-3.4 \%$ | Pass |
| 37.98 | 37.18 | $-2.1 \%$ | Pass |
| 37.96 | 36.88 | $-2.8 \%$ | Pass |
| 38.03 | 37.23 | $-2.1 \%$ | Pass |
| 38.57 | 37.14 | $-3.7 \%$ | Pass |
| 38.17 | 37.44 | $-1.9 \%$ | Pass |
| 38.21 | 37.82 | $-1.0 \%$ | Pass |
| 38.34 | 38.05 | $-0.8 \%$ | Pass |


| 2 F | 21 |
| :--- | :--- |
| 2 F | 22 |
| 2 F | 23 |
| 2 F | 24 |
| 2 F | 25 |
| 2 F | 26 |
| 2 F | 27 |
| 2 F | 28 |
| 2 F | 29 |
| 2 F | 30 |


| 38.76 | 36.71 | $-5.3 \%$ | Pass |
| :---: | :---: | :---: | :---: |
| 19.6 | 17.64 | $-10.0 \%$ | Pass |
| 19.49 | 17.15 | $-12.0 \%$ | Pass |
| 19.74 | 17.57 | $-11.0 \%$ | Pass |
| 19.56 | 17.02 | $-13.0 \%$ | Pass |
| 19.49 | 17.54 | $-10.0 \%$ | Pass |
| 19.81 | 17.04 | $-14.0 \%$ | Pass |
| 20.26 | 17.83 | $-12.0 \%$ | Pass |
| 20.32 | 18.69 | $-8.0 \%$ | Pass |
| 20.13 | 18.62 | $-7.5 \%$ | Pass |


| Floor | Window ID | Existing VSC (\%) | Proposed VSC (\%) | Difference (\%) | Condition |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 3 F | 31 | 38.76 | 37.1 | $-4.3 \%$ | Pass |
| 3 F | 32 | 19.7 | 17.73 | -10.0\% | Pass |
| 3 F | 33 | 19.83 | 17.45 | -12.0\% | Pass |
| 3 F | 34 | 19.94 | 17.75 | -11.0\% | Pass |
| 3 F | 35 | 20 | 17.40 | -13.0\% | Pass |
| 3 F | 36 | 19.49 | 17.54 | -10.0\% | Pass |
| 3 F | 37 | 20.03 | 17.23 | -14.0\% | Pass |
| 3 F | 38 | 20.56 | 18.09 | -12.0\% | Pass |
| 3 F | 39 | 20.32 | 18.69 | -8.0\% | Pass |
| 3 F | 40 | 19.75 | 18.27 | -7.5\% | Pass |
|  | 10 | Passing windows |  |  | 10 |
| 4F | 41 | 39 | 37.5 | -3.8\% | Pass |
| 4F | 42 | 38.92 | 37.72 | -3.1\% | Pass |
| 4F | 43 | 38.76 | 37.98 | -2.0\% | Pass |
| 4F | 44 | 32.23 | 38.19 | 18.5\% | Pass |
| 4F | 45 | 39.09 | 38.06 | -2.6\% | Pass |
| 4F | 46 | 38.95 | 38.17 | -2.0\% | Pass |
| 4F | 47 | 39 | 38.47 | -1.4\% | Pass |
| 4F | 48 | 39.33 | 38.61 | -1.8\% | Pass |
| 4 F | 49 | 39.39 | 38.88 | -1.3\% | Pass |
| 4F | 50 | 39.22 | 38.98 | -0.6\% | Pass |
|  | 10 | Passing windows |  |  | 10 |
| 5F | 51 | 39 | 37.38 | -4.2\% | Pass |
| 5 F | 52 | 20.31 | 18.279 | -10.0\% | Pass |
| 5 F | 53 | 21.21 | 18.66 | -12.0\% | Pass |
| 5F | 54 | 20.03 | 17.83 | -11.0\% | Pass |
| 5 F | 55 | 20.7 | 18.01 | -13.0\% | Pass |
| 5 F | 56 | 20.19 | 18.17 | -10.0\% | Pass |
| 5 F | 57 | 19.94 | 17.15 | -14.0\% | Pass |
| 5F | 58 | 20.27 | 17.84 | -12.0\% | Pass |
| 5F | 59 | 20.5 | 18.86 | -8.0\% | Pass |
| 5 F | 60 | 19.75 | 18.27 | -7.5\% | Pass |
|  | 10 | Passing windows |  |  | 10 |


| Floor | Window ID | Existing VSC <br> (\%) | Proposed VSC <br> (\%) | Difference <br> (\%) | Condition |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 6F | 61 | 38.63 | 37.76 | -2.3\% | Pass |
| 6 F | 62 | 20.31 | 18.279 | -10.0\% | Pass |
| 6 F | 63 | 20.27 | 17.84 | -12.0\% | Pass |
| 6 F | 64 | 20.26 | 18.03 | -11.0\% | Pass |
| 6F | 65 | 20.7 | 18.01 | -13.0\% | Pass |
| 6F | 66 | 20.19 | 18.17 | -10.0\% | Pass |
| 6F | 67 | 20.06 | 17.25 | -14.0\% | Pass |
| 6F | 68 | 20.53 | 18.07 | -12.0\% | Pass |
| 6F | 69 | 20.58 | 18.93 | -8.0\% | Pass |
| 6 F | 70 | 20.32 | 18.80 | -7.5\% | Pass |
|  | 10 | Passing windows |  |  | 10 |
| 7 F | 71 | 38.83 | 38.17 | -1.7\% | Pass |
| 7 F | 72 | 39.28 | 38.16 | -2.9\% | Pass |
| 7 F | 73 | 39.15 | 39.34 | 0.5\% | Pass |
| 7 F | 74 | 39.01 | 38.58 | -1.1\% | Pass |
| 7 F | 75 | 39.24 | 38.84 | -1.0\% | Pass |
| 7 F | 76 | 39.32 | 38.72 | -1.5\% | Pass |
| 7 F | 77 | 39.15 | 39.09 | -0.2\% | Pass |
| 7 F | 78 | 39.35 | 39.06 | -0.7\% | Pass |
| 7 F | 79 | 39.45 | 39.4 | -0.1\% | Pass |
| 7 F | 80 | 39.28 | 39.36 | 0.2\% | Pass |
|  | 10 | Passing windows |  |  | 10 |
| 8F | 81 | 38.99 | 38.51 | -1.2\% | Pass |
| 8F | 82 | 20.31 | 18.279 | -10.0\% | Pass |
| 8F | 83 | 20.27 | 17.84 | -12.0\% | Pass |
| 8F | 84 | 20.47 | 18.22 | -11.0\% | Pass |
| 8F | 85 | 20.7 | 18.01 | -13.0\% | Pass |
| 8F | 86 | 20.2 | 18.18 | -10.0\% | Pass |
| 8F | 87 | 20.41 | 17.55 | -14.0\% | Pass |
| 8F | 88 | 20.35 | 17.91 | -12.0\% | Pass |
| 8 F | 89 | 20.5 | 18.86 | -8.0\% | Pass |
| 8F | 90 | 20.32 | 18.80 | -7.5\% | Pass |
|  | 10 | Passing windows |  |  | 10 |
|  |  | Number of passing windows |  |  | 95 |

Building 8C－Thurlow Street SUNLIGHT

| Floor |
| :--- |
| Window <br> ID |
| Window orientation |
| GF  －Thurlow Street <br> GF 2 SW <br> GF 3 SW <br> GF 4 SW <br> GF 5 SW <br> GF 6 SW <br> GF 7 SW <br> GF 8 SW <br> GF 9 SW <br> GF 10 SW |


| Annual APSH | Winter APSH | Condition |
| :--- | :--- | :--- |


| Annual APSH | Losses／ <br> Gains | Condition <br> （Annual） | Winter APSH | Losses／ <br> Gains | Condition <br> （Winter） |
| :---: | :---: | :---: | :---: | :---: | :---: |


| IF | 11 | SW |
| :---: | :---: | :---: |
| IF | 12 | $S W$ |
| IF | 13 | $S W$ |
| IF | 14 | $S W$ |
| IF | 15 | $S W$ |
| IF | 16 | $S W$ |
| IF | 17 | $S W$ |
| IF | 18 | $S W$ |
| IF | 19 | $S W$ |
| IF | 20 | $S W$ |


| Passing windows |
| :--- |
| $58.78 \%$ $68.80 \%$ Pass <br> $57.45 \%$ $68.04 \%$ Pass <br> $60.29 \%$ $71.16 \%$ Pass <br> $59.82 \%$ $72.06 \%$ Pass <br> $60.02 \%$ $73.02 \%$ Pass <br> $59.95 \%$ $73.71 \%$ Pass <br> $60.94 \%$ $74.29 \%$ Pass <br> $62.23 \%$ $75.80 \%$ Pass <br> $62.14 \%$ $76.37 \%$ Pass <br> $63.17 \%$ $76.37 \%$ Pass |


| $58.95 \%$ | $-6.3 \%$ | Pass | $64.21 \%$ | $-2.8 \%$ | Pass |
| :--- | :--- | :--- | :--- | :--- | :--- |
| $57.18 \%$ | $-4.3 \%$ | Pass | $67.61 \%$ | $-2.3 \%$ | Pass |
| $61.96 \%$ | $-5.1 \%$ | Pass | $70.69 \%$ | $-1.0 \%$ | Pass |
| $62.13 \%$ | $-4.3 \%$ | Pass | $71.86 \%$ | $0.0 \%$ | Pass |
| $62.56 \%$ | $-4.4 \%$ | Pass | $73.01 \%$ | $0.0 \%$ | Pass |
| $62.37 \%$ | $-5.2 \%$ | Pass | $74.90 \%$ | $-1.6 \%$ | Pass |
| $63.16 \%$ | $-5.1 \%$ | Pass | $75.54 \%$ | $-1.7 \%$ | Pass |
| $63.18 \%$ | $-4.4 \%$ | Pass | $75.80 \%$ | $0.0 \%$ | Pass |
| $62.84 \%$ | $-4.2 \%$ | Pass | $76.37 \%$ | $0.0 \%$ | Pass |
| $61.37 \%$ | $-3.2 \%$ | Pass | $70.28 \%$ | $0.0 \%$ | Pass |


| Pass |
| :--- |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| 10 |


| $62.16 \%$ | $-5.4 \%$ | Pass | $70.38 \%$ | $-2.2 \%$ | Pass |
| :--- | :--- | :--- | :--- | :--- | :--- |
| $60.75 \%$ | $-5.4 \%$ | Pass | $68.50 \%$ | $-0.7 \%$ | Pass |
| $62.57 \%$ | $-3.6 \%$ | Pass | $70.98 \%$ | $0.3 \%$ | Pass |
| $62.37 \%$ | $-4.1 \%$ | Pass | $72.06 \%$ | $0.0 \%$ | Pass |
| $62.57 \%$ | $-4.1 \%$ | Pass | $73.02 \%$ | $0.0 \%$ | Pass |
| $62.90 \%$ | $-4.7 \%$ | Pass | $75.04 \%$ | $-1.8 \%$ | Pass |
| $63.19 \%$ | $-3.6 \%$ | Pass | $75.54 \%$ | $-1.7 \%$ | Pass |
| $63.18 \%$ | $-1.5 \%$ | Pass | $75.80 \%$ | $0.0 \%$ | Pass |
| $62.84 \%$ | $-1.1 \%$ | Pass | $76.37 \%$ | $0.0 \%$ | Pass |
| $63.86 \%$ | $-1.1 \%$ | Pass | $76.37 \%$ | $0.0 \%$ | Pass |


| Pass |
| :--- |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| 10 |


| $2 F$ | 21 | $S W$ |
| :--- | :--- | :--- |
| $2 F$ | 22 | $S W$ |
| $2 F$ | 23 | $S W$ |
| $2 F$ | 24 | $S W$ |
| $2 F$ | 25 | $S W$ |
| $2 F$ | 26 | $S W$ |
| $2 F$ | 27 | $S W$ |
| $2 F$ | 28 | $S W$ |
| $2 F$ | 29 | $S W$ |
| $2 F$ | 30 | $S W$ |


| $60.56 \%$ | $71.62 \%$ | Pass |
| :---: | :---: | :---: |
| $24.72 \%$ | $37.45 \%$ | Fail |
| $27.43 \%$ | $40.15 \%$ | Pass |
| $26.76 \%$ | $39.31 \%$ | Pass |
| $26.97 \%$ | $39.85 \%$ | Pass |
| $28.06 \%$ | $40.20 \%$ | Pass |
| $28.70 \%$ | $40.67 \%$ | Pass |
| $29.30 \%$ | $41.52 \%$ | Pass |
| $29.52 \%$ | $40.78 \%$ | Pass |
| $25.07 \%$ | $31.20 \%$ | Pass |


| 63．15\％ | $-4.1 \%$ | Pass | 71．62\％ | 0．0\％ | Pass |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 26．07\％ | －5．2\％ | Pass | 37．30\％ | 0．4\％ | Pass |
| 29．81\％ | －8．0\％ | Pass | 39．79\％ | 0．9\％ | Pass |
| 29．60\％ | －9．6\％ | Pass | 39．31\％ | 0．0\％ | Pass |
| 30．23\％ | －10．8\％ | Pass | 39．85\％ | 0．0\％ | Pass |
| 30．65\％ | －8．5\％ | Pass | 41．07\％ | －2．1\％ | Pass |
| 30．63\％ | －6．3\％ | Pass | 41．48\％ | －2．0\％ | Pass |
| 30．84\％ | －5．0\％ | Pass | 41．52\％ | 0．0\％ | Pass |
| 30．20\％ | $-2.3 \%$ | Pass | 40．78\％ | 0．0\％ | Pass |
| 25．83\％ | －2．9\％ | Pass | 31．20\％ | 0．0\％ | Pass |
| Passing windows |  |  |  |  |  |
| 65．13\％ | －6．1\％ | Pass | 74．50\％ | －1．7\％ | Pass |
| 24．85\％ | －6．2\％ | Pass | 35．68\％ | －1．5\％ | Pass |
| 27．78\％ | $-7.7 \%$ | Pass | 36．77\％ | 0．5\％ | Pass |
| 27．18\％ | －8．1\％ | Pass | 36．13\％ | 0．0\％ | Pass |
| 27．36\％ | －8．3\％ | Pass | 36．71\％ | －0．7\％ | Pass |
| 27．73\％ | －8．0\％ | Pass | 37．83\％ | －2．7\％ | Pass |
| 27．71\％ | －6．8\％ | Pass | 38．53\％ | －2．1\％ | Pass |
| 28．11\％ | $-4.9 \%$ | Pass | 39．28\％ | 0．0\％ | Pass |
| 27．72\％ | －4．5\％ | Pass | 39．41\％ | 0．0\％ | Pass |
| 25．17\％ | －5．6\％ | Pass | 32．02\％ | $-1.3 \%$ | Pass |


| Pass |
| :--- |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| 10 |


| $3 F$ | 31 | $S W$ |
| :--- | :--- | :--- |
| $3 F$ | 32 | $5 W$ |
| $3 F$ | 33 | $5 W$ |
| $3 F$ | 34 | $5 W$ |
| $3 F$ | 35 | $5 W$ |
| $3 F$ | 36 | $5 W$ |
| $3 F$ | 37 | $5 W$ |
| $3 F$ | 38 | $5 W$ |
| $3 F$ | 39 | $S W$ |
| $3 F$ | 40 | $S W$ |


| $61.18 \%$ | $73.26 \%$ | Pass |
| :---: | :---: | :---: |
| $23.30 \%$ | $35.15 \%$ | Fail |
| $25.64 \%$ | $36.94 \%$ | Pass |
| $24.97 \%$ | $36.13 \%$ | Fail |
| $25.10 \%$ | $36.45 \%$ | Pass |
| $25.51 \%$ | $36.81 \%$ | Pass |
| $25.83 \%$ | $37.72 \%$ | Pass |
| $26.73 \%$ | $39.28 \%$ | Pass |
| $26.46 \%$ | $39.41 \%$ | Pass |
| $23.76 \%$ | $31.60 \%$ | Fail |


| 10 |
| :---: |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| 10 |


| $4 F$ | 41 | $5 W$ |
| :--- | :--- | :--- |
| $4 F$ | $4^{2}$ | $5 W$ |
| $4 F$ | 43 | $5 W$ |
| $4 F$ | 44 | $5 W$ |
| $4 F$ | 45 | $5 W$ |
| $4 F$ | 46 | $5 W$ |
| $4 F$ | 47 | $5 W$ |
| $4 F$ | 48 | $5 W$ |
| $4 F$ | 49 | $5 W$ |
| $4 F$ | 50 | $5 W$ |


| $61.75 \%$ | $74.74 \%$ | Pass |
| :---: | :---: | :---: |
| $60.99 \%$ | $73.88 \%$ | Pass |
| $62.12 \%$ | $75.37 \%$ | Pass |
| $61.57 \%$ | $75.42 \%$ | Pass |
| $61.57 \%$ | $74.91 \%$ | Pass |
| $62.33 \%$ | $74.49 \%$ | Pass |
| $63.05 \%$ | $76.45 \%$ | Pass |
| $63.90 \%$ | $77.62 \%$ | Pass |
| $63.99 \%$ | $78.18 \%$ | Pass |
| $65.20 \%$ | $78.18 \%$ | Pass |


| $65 \cdot 39 \%$ | $-5.6 \%$ | Pass | $75.19 \%$ | $-0.6 \%$ | Pass |
| :--- | :--- | :--- | :--- | :--- | :--- |
| $65.95 \%$ | $-7.5 \%$ | Pass | $78.18 \%$ | $-5.5 \%$ | Pass |
| $65.38 \%$ | $-5.0 \%$ | Pass | $78.18 \%$ | $-3.6 \%$ | Pass |
| $65.28 \%$ | $-5.7 \%$ | Pass | $77.62 \%$ | $-2.8 \%$ | Pass |
| $65.27 \%$ | $-5.7 \%$ | Pass | $77.34 \%$ | $-3.1 \%$ | Pass |
| $65.52 \%$ | $-4.9 \%$ | Pass | $76.11 \%$ | $-2.1 \%$ | Pass |
| $65.04 \%$ | $-3.1 \%$ | Pass | $75.81 \%$ | $0.8 \%$ | Pass |
| $65.05 \%$ | $-1.8 \%$ | Pass | $75.45 \%$ | $2.9 \%$ | Pass |
| $65.59 \%$ | $-2.4 \%$ | Pass | $75.37 \%$ | $3.7 \%$ | Pass |
| $64.45 \%$ | $1.2 \%$ | Pass | $73.89 \%$ | $5.8 \%$ | Pass |


| Pass |
| :--- |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| 10 |


| 5 F | 51 | $5 W$ |
| :---: | :---: | :---: |
| $5^{\mathrm{F}}$ | 52 | $5 W$ |
| $5^{\mathrm{F}}$ | 53 | $5 W$ |
| 5 F | 54 | $5 W$ |
| 5 F | 55 | $5 W$ |
| 5 F | 56 | $5 W$ |
| 5 F | 57 | $5 W$ |
| 5 F | 58 | $5 W$ |
| 5 F | 59 | $5 W$ |
| 5 F | 60 | $5 W$ |


| $65 \cdot 39 \%$ | $-5.2 \%$ | Pass | $75.19 \%$ | $0.0 \%$ | Pass |
| :--- | :--- | :--- | :--- | :--- | :--- |
| $29.31 \%$ | $-11.0 \%$ | Pass | $40.25 \%$ | $0.0 \%$ | Pass |
| $32.04 \%$ | $-11.6 \%$ | Pass | $41.31 \%$ | $0.0 \%$ | Pass |
| $31.71 \%$ | $-9.4 \%$ | Pass | $41.37 \%$ | $0.0 \%$ | Pass |
| $31.91 \%$ | $-6.6 \%$ | Pass | $41.62 \%$ | $0.0 \%$ | Pass |
| $32.02 \%$ | $-4.8 \%$ | Pass | $41.78 \%$ | $0.0 \%$ | Pass |
| $31.88 \%$ | $-2.9 \%$ | Pass | $42.61 \%$ | $0.0 \%$ | Pass |
| $32.19 \%$ | $-1.8 \%$ | Pass | $42.67 \%$ | $0.0 \%$ | Pass |
| $31.68 \%$ | $-1.4 \%$ | Pass | $41.94 \%$ | $0.0 \%$ | Pass |
| $26.84 \%$ | $-0.6 \%$ | Pass | $32.39 \%$ | $0.0 \%$ | Pass |


| Pass |
| :--- |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| 10 |


| \％ | \％ | \％ | \％ | \％ | \％ | \％ | \％ | \％ | \％ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ¢ | $๑$ | ® | จ | இ | 9 | $\stackrel{\square}{+}$ | $\stackrel{\square}{\square}$ | $\stackrel{\text { N }}{ }$ | 9 |
| そn | n | そ | n | そ | n | n | n | n | n |


| $65.40 \%$ | $-4.3 \%$ | Pass | $75.19 \%$ | $0.0 \%$ | Pass |
| :--- | :--- | :--- | :--- | :--- | :--- |
| $25.51 \%$ | $-3.9 \%$ | Pass | $36.89 \%$ | $0.0 \%$ | Pass |
| $28.21 \%$ | $-6.2 \%$ | Pass | $37.91 \%$ | $0.0 \%$ | Pass |
| $27.88 \%$ | $-6.3 \%$ | Pass | $37.98 \%$ | $0.0 \%$ | Pass |
| $28.18 \%$ | $-5.8 \%$ | Pass | $38.23 \%$ | $0.0 \%$ | Pass |
| $28.19 \%$ | $-3.7 \%$ | Pass | $38.39 \%$ | $0.0 \%$ | Pass |
| $28.05 \%$ | $-1.8 \%$ | Pass | $39.22 \%$ | $0.0 \%$ | Pass |
| $28.36 \%$ | $-0.7 \%$ | Pass | $39.28 \%$ | $0.0 \%$ | Pass |
| $28.25 \%$ | $0.0 \%$ | Pass | $39.41 \%$ | $0.0 \%$ | Pass |
| $25.24 \%$ | $0.0 \%$ | Pass | $32.02 \%$ | $0.0 \%$ | Pass |


| Pass |
| :---: |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| 10 |

Building 8C - Thurlow Street SUNLIGHT

| Floor | Window ID | Window orientation |
| :---: | :---: | :---: |
| 7F | 71 | sw |
| 7F | 72 | SW |
| 7 F | 73 | sw |
| 7 F | 74 | sw |
| 7 F | 75 | sw |
| 7 F | 76 | sw |
| 7 F | 77 | sw |
| 7F | 78 | sw |
| 7 F | 79 | sw |
| 7F | 80 | sw |



| Annual APSH Losses/ <br> Gains Condition <br> (Annual) Winter APSH Losses/ <br> Gains Condition <br> (Winter) <br> $65.52 \%$ $-4.2 \%$ Pass $75.19 \%$ $0.0 \%$ <br> $64.78 \%$ $-3.9 \%$ Pass $73.89 \%$ $2.0 \%$ <br> $65.59 \%$ $-3.4 \%$ Pass $75 \cdot 37 \%$ $0.1 \%$ <br> $65.18 \%$ $-3.1 \%$ Pass $75 \cdot 45 \%$ $0.5 \%$ <br> $65.72 \%$ $-2.6 \%$ Pass $75.81 \%$ $0.4 \%$ <br> $65.52 \%$ $-1.4 \%$ Pass $75.11 \%$ $-14.0 \%$ <br> $65.27 \%$ $-0.6 \%$ Pass $77.34 \%$ $0.0 \%$ <br> $66.14 \%$ $0.0 \%$ Pass $77.62 \%$ $0.0 \%$ <br> $65.77 \%$ $0.6 \%$ Pass $78.18 \%$ $-0.7 \%$ <br> $65.95 \%$ $0.0 \%$ Pass $78.18 \%$ $0.0 \%$     Pass |
| :--- |

Condiiton

| 8 F | 81 | $S W$ |
| :--- | :--- | :--- |
| 8 F | 82 | $5 W$ |
| 8 F | 83 | $5 W$ |
| 8 F | 84 | $5 W$ |
| 8 F | 85 | $5 W$ |
| 8 F | 86 | $5 W$ |
| 8 F | 87 | $5 W$ |
| 8 F | 88 | $5 W$ |
| 8 F | 89 | $5 W$ |
| 8 F | 90 | $5 W$ |
| 10 |  |  |


| $63.03 \%$ | $75.94 \%$ | Pass |
| :--- | :--- | :--- |
| $37.90 \%$ | $49.50 \%$ | Pass |
| $40.01 \%$ | $50.61 \%$ | Pass |
| $40.01 \%$ | $50.96 \%$ | Pass |
| $40.44 \%$ | $51.21 \%$ | Pass |
| $40.82 \%$ | $51.37 \%$ | Pass |
| $41.28 \%$ | $52.20 \%$ | Pass |
| $41.89 \%$ | $52.26 \%$ | Pass |
| $41.46 \%$ | $51.89 \%$ | Pass |
| $33.32 \%$ | $36.76 \%$ | Pass |


| $65.81 \%$ | $-4.2 \%$ | Pass | $75.94 \%$ | $0.0 \%$ | Pass |
| :--- | :--- | :--- | :--- | :--- | :--- |
| $38.97 \%$ | $-2.7 \%$ | Pass | $49.78 \%$ | $-0.6 \%$ | Pass |
| $41.59 \%$ | $-3.8 \%$ | Pass | $50.90 \%$ | $-0.6 \%$ | Pass |
| $51.35 \%$ | $-22.1 \%$ | Fail | $51.01 \%$ | $-0.1 \%$ | Pass |
| $41.73 \%$ | $-3.1 \%$ | Pass | $51.26 \%$ | $-0.1 \%$ | Pass |
| $41.71 \%$ | $-2.1 \%$ | Pass | $51.75 \%$ | $-0.7 \%$ | Pass |
| $41.70 \%$ | $-1.0 \%$ | Pass | $52.59 \%$ | $-0.7 \%$ | Pass |
| $42.17 \%$ | $-0.7 \%$ | Pass | $52.65 \%$ | $-0.7 \%$ | Pass |
| $41.59 \%$ | $-0.3 \%$ | Pass | $52.22 \%$ | $-0.6 \%$ | Pass |
| $33.43 \%$ | $-0.3 \%$ | Pass | $37.04 \%$ | $-0.8 \%$ | Pass |


| Pass |
| :--- |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| Pass |
| 10 |
| 90 |

Building 9 - Inville Road


Building 9 - Inville Road DAYLIGHT

| Floor | Window ID | Existing VSC (\%) | Proposed VSC <br> (\%) | Difference (\%) | Condition |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Building 9 - Inville Road |  |  |  |  |  |
| GF | 1 | 33.51 | 24.04 | -28.3\% | Fail |
| GF | 2 | 33.76 | 25.18 | -25.4\% | Fail |
| GF | 3 | 33.15 | 25.39 | -23.4\% | Fail |
| GF | 4 | 31.08 | 26.58 | -14.5\% | Pass |
| GF | 5 | 22.73 | 28.46 | 25.2\% | Pass |
| GF | 6 | 30.84 | 30.52 | -1.0\% | Pass |
| GF | 7 | 32.3 | 31.86 | -1.4\% | Pass |
| GF | 8 | 33.01 | 32.7 | -0.9\% | Pass |
| GF | 9 | 33.73 | 33.28 | -1.3\% | Pass |
| GF | 10 | 34.3 | 33.37 | -2.7\% | Pass |
| GF | 11 | 34.27 | 33.67 | -1.8\% | Pass |
| GF | 12 | 34.54 | 33.92 | -1.8\% | Pass |
| GF | 13 | 34.5 | 33.84 | -1.9\% | Pass |
| GF | 14 | 34.83 | 34.11 | -2.1\% | Pass |
| GF | 15 | 34.9 | 34.63 | -0.8\% | Pass |
| GF | 16 | 35.71 | 35.01 | -2.0\% | Pass |
|  | 16 |  |  | assing windo | 13 |

Building 9 - Inville Road DAYLIGHT

| Floor | Window ID | Existing VSC (\%) | Proposed VSC (\%) | Difference (\%) | Condition |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 1F | 17 | 17.32 | 11.26 | -35.0\% | Fail |
| 1F | 18 | 16.95 | 11.51 | -32.1\% | Fail |
| 1 F | 19 | 16.86 | 12.05 | -28.5\% | Fail |
| 1F | 20 | 16.44 | 13.14 | -20.1\% | Fail |
| 1 F | 21 | 16.15 | 10.90 | -32.5\% | Fail |
| 1 F | 22 | 15.92 | 10.71 | -32.7\% | Fail |
| 1F | 23 | 16.42 | 15.27 | -7.0\% | Pass |
| 1 F | 24 | 16.87 | 15.55 | -7.8\% | Pass |
| 1 F | 25 | 17.5 | 16.00 | -8.6\% | Pass |
| 1F | 26 | 17.7 | 15.91 | -10.1\% | Pass |
| 1 F | 27 | 17.83 | 15.87 | -11.0\% | Pass |
| 1 F | 28 | 17.65 | 15.92 | -9.8\% | Pass |
| 1 F | 29 | 17.73 | 16.24 | -8.4\% | Pass |
| 1 F | 30 | 18.35 | 16.92 | -7.8\% | Pass |
| 1 F | 31 | 18.95 | 17.72 | -6.5\% | Pass |
| 1 F | 32 | 19.05 | 17.85 | -6.3\% | Pass |
| 1 F | 33 | 19.15 | 17.69 | -7.6\% | Pass |
| 1 F | 34 | 19.3 | 17.99 | -6.8\% | Pass |
| 1 F | 35 | 19.45 | 21.01 | 8.0\% | Pass |
|  | 19 | Passing windows |  |  | 13 |

Building 9 - Inville Road
DAYLIGHT

| Floor | Window ID | Existing VSC <br> (\%) | Proposed VSC (\%) | Difference <br> (\%) | Condition |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 2 F | 36 | 36.21 | 35.59 | -1.7\% | Pass |
| 2F | 37 | 36.4 | 30.28 | -16.8\% | Pass |
| 2 F | 38 | 35.62 | 30.72 | -13.8\% | Pass |
| 2F | 39 | 35.47 | 31.16 | -12.2\% | Pass |
| 2 F | 40 | 35.99 | 32.88 | -8.6\% | Pass |
| 2 F | 41 | 36.71 | 33.82 | -7.9\% | Pass |
| 2 F | 42 | 36.87 | 34.73 | -5.8\% | Pass |
| 2 F | 43 | 36.95 | 35.2 | -4.7\% | Pass |
| 2 F | 44 | 36.4 | 35.56 | -2.3\% | Pass |
| 2 F | 45 | 37.11 | 35.68 | -3.9\% | Pass |
| 2 F | 46 | 37.31 | 36.17 | -3.1\% | Pass |
| 2 F | 47 | 37.63 | 36.57 | -2.8\% | Pass |
| 2 F | 48 | 37.59 | 36.63 | -2.6\% | Pass |
| 2 F | 49 | 37.6 | 36.87 | -1.9\% | Pass |
| 2 F | 50 | 37.86 | 37.32 | -1.4\% | Pass |
| 2 F | 51 | 38.07 | 37.57 | -1.3\% | Pass |
|  | 16 | Passing windows |  |  | 16 |
| 3 F | 52 | 37.52 | 31.93 | -14.9\% | Pass |
| 3F | 53 | 37.52 | 32.29 | -13.9\% | Pass |
| 3 F | 54 | 37.52 | 32.74 | -12.7\% | Pass |
| 3 F | 55 | 37.06 | 33.15 | -10.6\% | Pass |
| 3 F | 56 | 37.87 | 34.62 | -8.6\% | Pass |
| 3 F | 57 | 37.44 | 35.38 | -5.5\% | Pass |
| 3 F | 58 | 37.92 | 36.14 | -4.7\% | Pass |
| 3 F | 59 | 37.88 | 36.37 | -4.0\% | Pass |
| 3 F | 60 | 37.84 | 36.84 | -2.6\% | Pass |
| 3 F | 61 | 38.15 | 36.79 | -3.6\% | Pass |
| 3 F | 62 | 38.19 | 37 | -3.1\% | Pass |
| 3 F | 63 | 38.66 | 37.4 | -3.3\% | Pass |
| 3 F | 64 | 38.82 | 37.54 | -3.3\% | Pass |
| 3 F | 65 | 38.51 | 37.8 | -1.8\% | Pass |
| 3 F | 66 | 38.71 | 38.12 | -1.5\% | Pass |
| 3 F | 67 | 38.65 | 38.2 | -1.2\% | Pass |
|  | 16 | Passing windows |  |  | 16 |
|  |  | Number of passing windows |  |  | 287 |

## Appendix B

Shadow range
Shadow range $-21^{\text {st }}$ March
$21^{\text {st }}$ March (Equinox)


09:00 am


11:00 am


13:00 am


15:00 pm


17:00 am

Shadow range - $21^{\text {st }}$ June
$21^{\text {st }}$ June (Summer solstice)



13:00 am



15:00 pm


17:00 am

## Appendix C

Detailed Daylight results - Proposed building

## Detailed Daylight results - North Block

Plot 18A

| Unit | Floor | Room name | Function |
| :---: | :---: | :---: | :---: |
|  | 1 F | B1-0101-Bedroom1 | Bedroom |
|  | 1 F | B1-0101-Kitchen Living Dining | Kitchen/Living/Dining |
|  | 1 F | B1-0102-Bedroom1 | Bedroom |
|  | 1 F | B1-0102-Bedroom2 | Bedroom |
|  | ${ }_{1} \mathrm{~F}$ | B1-0102-Kitchen Living Dining | Kitchen/Living/Dining |
|  | 1 F | B1-0103-Bedroom1 | Bedroom |
|  | 1 F | B1-0103-Kitchen Living Dining | Kitchen/Living/Dining |
|  | 1 F | B1-0104-Bedroom1 | Bedroom |
|  | 1 F | B1-0104-Kitchen Living Dining | Kitchen/Living/Dining |
|  | 1 F | B1-0105-Bedroom1 | Bedroom |
|  | 1 F | B1-0105-Kitchen Living Dining | Kitchen/Living/Dining |
|  |  | 11 | 11 |


| ADF | Recommended <br> value | Pass/Fail <br> (room) | ADF of at <br> least $5 \%$ |
| :---: | :---: | :---: | :---: |
| $0.6 \%$ | $1 \%$ | Fail | no |
| $2.3 \%$ | $2 \%$ | Pass | no |
| $3.3 \%$ | $1 \%$ | Pass | no |
| $4.3 \%$ | $1 \%$ | Pass | no |
| $3.9 \%$ | $2 \%$ | Pass | no |
| $1.0 \%$ | $1 \%$ | Pass | no |
| $2.0 \%$ | $2 \%$ | Pass | no |
| $4.3 \%$ | $1 \%$ | Pass | no |
| $4.7 \%$ | $2 \%$ | Pass | no |
| $1.1 \%$ | $1 \%$ | Pass | no |
| $2.7 \%$ | $2 \%$ | Pass | no |
| Passing rooms | 10 |  | 0 |


| Sky view | No-Sky Line | Pass/Fail |
| :---: | :---: | :---: |
| $92 \%$ | $8 \%$ | Pass |
| $99 \%$ | $1 \%$ | Pass |
| $76 \%$ | $24 \%$ | Fail |
| $97 \%$ | $3 \%$ | Pass |
| $100 \%$ | $0 \%$ | Pass |
| $76 \%$ | $24 \%$ | Fail |
| $53 \%$ | $47 \%$ | Fail |
| $95 \%$ | $5 \%$ | Pass |
| $100 \%$ | $0 \%$ | Pass |
| $100 \%$ | $0 \%$ | Pass |
| $100 \%$ | $0 \%$ | Pass |


| 2 F | B1-0201-Bedroom1 | Bedroom |  |  |
| :--- | :--- | :--- | :---: | :---: |
| 2 F | B1-0201-Kitchen Living Dining | Kitchen/Living/Dining |  |  |
| 2 F | B1-0202-Bedroom1 | Bedroom |  |  |
| 2 F | B1-0202-Bedroom2 | Bedroom |  |  |
| 2 F | B1-0202-Kitchen Living Dining | Kitchen/Living/Dining |  |  |
| 2 F | B1-0203-Bedroom1 | Bedroom |  |  |
| 2 F | B1-0203-Kitchen Living Dining | Kitchen/Living/Dining |  |  |
| 2 F | B1-0204-Bedroom1 | Bedroom |  |  |
| 2 F | B1-0204-Kitchen Living Dining | Kitchen/Living/Dining |  |  |
| 2 F | B1-0205-Bedroom1 | Bedroom |  |  |
| 2 F | B1-0205-Kitchen Living Dining | Kitchen/Living/Dining |  |  |
| 11 |  |  |  |  |


| $0.7 \%$ | $1 \%$ | Fail | no |
| :---: | :---: | :---: | :---: |
| $2.4 \%$ | $2 \%$ | Pass | no |
| $3.6 \%$ | $1 \%$ | Pass | no |
| $4.6 \%$ | $1 \%$ | Pass | no |
| $4.2 \%$ | $2 \%$ | Pass | no |
| $1.3 \%$ | $1 \%$ | Pass | no |
| $2.2 \%$ | $2 \%$ | Pass | no |
| $4.6 \%$ | $1 \%$ | Pass | no |
| $5.0 \%$ | $2 \%$ | Pass | yes |
| $1.2 \%$ | $\mathbf{1 \%}$ | Pass | no |
| $2.8 \%$ | $2 \%$ | Pass | no |
| Passing rooms | 10 |  | 1 |


| $88 \%$ | $12 \%$ | Pass |  |  |
| :---: | :---: | :---: | :---: | :---: |
| $100 \%$ | $0 \%$ | Pass |  |  |
| $85 \%$ | $15 \%$ | Pass |  |  |
| $100 \%$ | $0 \%$ | Pass |  |  |
| $100 \%$ | $0 \%$ | Pass |  |  |
| $98 \%$ | $2 \%$ | Pass |  |  |
| $59 \%$ | $41 \%$ | Fail |  |  |
| $100 \%$ | $0 \%$ | Pass |  |  |
| $100 \%$ | $0 \%$ | Pass |  |  |
| $100 \%$ | $0 \%$ | Pass |  |  |
| $100 \%$ | $0 \%$ | Pass |  |  |
| Passing rooms |  |  |  | 10 |


| $0.7 \%$ | $1 \%$ | Fail | no |
| :---: | :---: | :---: | :---: |
| $2.6 \%$ | $2 \%$ | Pass | no |
| $3.8 \%$ | $1 \%$ | Pass | no |
| $4.9 \%$ | $1 \%$ | Pass | no |
| $4.5 \%$ | $2 \%$ | Pass | no |
| $1.6 \%$ | $1 \%$ | Pass | no |
| $2.3 \%$ | $2 \%$ | Pass | no |
| $4.9 \%$ | $1 \%$ | Pass | no |
| $5 \cdot 3 \%$ | $2 \%$ | Pass | yes |
| $1.3 \%$ | $1 \%$ | Pass | no |
| $2.9 \%$ | $2 \%$ | Pass | no |


| 88\% | 12\% | Pass |
| :---: | :---: | :---: |
| 100\% | ०\% | Pass |
| 98\% | 2\% | Pass |
| 100\% | ○\% | Pass |
| 100\% | ०\% | Pass |
| 100\% | -\% | Pass |
| 64\% | 36\% | Fail |
| 100\% | ०\% | Pass |
| 100\% | ०\% | Pass |
| 100\% | ○\% | Pass |
| 100\% | ०\% | Pass |
| Passing rooms |  | 10 |


| 4 F | B1-0401-Bedroom1 | Bedroom |
| :---: | :---: | :---: |
| 4 F | B1-0401-Kitchen Living Dining | Kitchen/Living/Dining |
| 4 F | B1-0402-Bedroom1 | Bedroom |
| 4 F | B1-0402-Bedroom2 | Bedroom |
| 4F | B1-0402-Kitchen Living Dining | Kitchen/Living/Dining |
| 4 F | B1-0403-Bedroom1 | Bedroom |
| 4 F | B1-0403-Kitchen Living Dining | Kitchen/Living/Dining |
| 4 F | B1-0404-Bedroom1 | Bedroom |
| 4 F | B1-0404-Kitchen Living Dining | Kitchen/Living/Dining |
| 4F | B1-0405-Bedroom1 | Bedroom |
| 4 F | B1-0405-Kitchen Living Dining | Kitchen/Living/Dining |


| $0.7 \%$ | $1 \%$ | Fail | no |
| :---: | :---: | :---: | :---: |
| $2.8 \%$ | $2 \%$ | Pass | no |
| $4.1 \%$ | $1 \%$ | Pass | no |
| $5.1 \%$ | $1 \%$ | Pass | yes |
| $4.9 \%$ | $2 \%$ | Pass | no |
| $1.9 \%$ | $1 \%$ | Pass | no |
| $2.5 \%$ | $2 \%$ | Pass | no |
| $5.2 \%$ | $1 \%$ | Pass | yes |
| $5.5 \%$ | $2 \%$ | Pass | yes |
| $1.3 \%$ | $1 \%$ | Pass | no |
| $2.9 \%$ | $2 \%$ | Pass | no |
| Passing rooms | 10 |  | 3 |


| $\mathbf{8 8 \%}$ | $\mathbf{1 2 \%}$ | Pass |
| :---: | :---: | :---: |
| $100 \%$ | $0 \%$ | Pass |
| $100 \%$ | $0 \%$ | Pass |
| $100 \%$ | $0 \%$ | Pass |
| $100 \%$ | $0 \%$ | Pass |
| $100 \%$ | $0 \%$ | Pass |
| $78 \%$ | $\mathbf{2 2 \%}$ | Fail |
| $100 \%$ | $0 \%$ | Pass |
| $100 \%$ | $0 \%$ | Pass |
| $100 \%$ | $0 \%$ | Pass |
| $100 \%$ | $0 \%$ | Pass |

Plot 18A


Plot 18A


Plot 18A


Plot 18A

| Unit | Floor | Room name | Function | ADF | Recommended value | Pass/Fail (room) | ADF of at least 5\% | Sky view | No-Sky Line | Pass/Fail |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{aligned} & N \\ & \vdots \\ & \vdots \\ & 0 \\ & \mathbf{~} \end{aligned}$ | 5F | B2-0501-Bedroom1 | Bedroom | 4.6\% | 1\% | Pass | no | 100\% | ०\% | Pass |
|  | ${ }_{5} \mathrm{~F}$ | B2-0501-Kitchen Living Dining | Kitchen/Living/Dining | 2.8\% | 2\% | Pass | no | 100\% | ०\% | Pass |
|  | 5F | B2-0502-Bedroom1 | Bedroom | 4.6\% | 1\% | Pass | no | 100\% | ०\% | Pass |
|  | 5 F | B2-0502-Bedroom2 | Bedroom | 2.9\% | 1\% | Pass | no | 83\% | 17\% | Pass |
|  | ${ }_{5} \mathrm{~F}$ | B2-0502-Kitchen | Kitchen | 2.0\% | 2\% | Pass | no | 100\% | ०\% | Pass |
|  | ${ }_{5} \mathrm{~F}$ | B2-0502-Living Dining | Living/Dining | 2.0\% | 1.5\% | Pass | no | 95\% | 5\% | Pass |
|  | 5 F | B2-0503-Bedroom1 | Bedroom | 2.8\% | 1\% | Pass | no | 100\% | 0\% | Pass |
|  | 5 F | B2-0503-Bedroom2 | Bedroom | 2.8\% | 1\% | Pass | no | 100\% | ०\% | Pass |
|  | 5 F | B2-0503-Kitchen | Kitchen | 3.0\% | 2\% | Pass | no | 100\% | ०\% | Pass |
|  | 5 F | B2-0503-Living Dining | Living/Dining | 1.9\% | 1.5\% | Pass | no | 100\% | ०\% | Pass |
|  | 5 F | B2-0504-Bedroom1 | Bedroom | 3.0\% | 1\% | Pass | no | 97\% | 3\% | Pass |
|  | ${ }_{5} \mathrm{~F}$ | B2-0504-Bedroom2 | Bedroom | 2.9\% | 1\% | Pass | no | 100\% | 0\% | Pass |
|  | 5 F | B2-0504-Kitchen | Kitchen | 4.0\% | 2\% | Pass | no | 100\% | 0\% | Pass |
|  | ${ }_{5} \mathrm{~F}$ | B2-0504-Living Dining | Living/Dining | 2.4\% | 1.5\% | Pass | no | 100\% | ०\% | Pass |
|  |  | 14 | 14 | Passing rooms | 14 |  | - | Passing rooms |  | 14 |
|  | 6 F | B2-0602-Bedroom1 | Bedroom | 5.1\% | 1\% | Pass | yes | 100\% | 0\% | Pass |
|  | 6 F | B2-0602-Bedroom2 | Bedroom | 3.2\% | 1\% | Pass | no | 86\% | 14\% | Pass |
|  | 6 F | B2-0602-Kitchen | Kitchen | 2.5\% | 2\% | Pass | no | 100\% | ०\% | Pass |
|  | 6 F | B2-0602-Living Dining | Living/Dining | 4.1\% | 1.5\% | Pass | no | 100\% | ०\% | Pass |
|  | 6 F | B2-0603-Bedroom1 | Bedroom | 3.4\% | 1\% | Pass | no | 100\% | ०\% | Pass |
|  | 6 F | B2-0603-Bedroom2 | Bedroom | 3.2\% | 1\% | Pass | no | 100\% | ०\% | Pass |
|  | 6 F | B2-0603-Kitchen | Kitchen | 3.9\% | 2\% | Pass | no | 100\% | ०\% | Pass |
|  | 6 F | B2-0603-Living Dining | Living/Dining | 2.4\% | 1.5\% | Pass | no | 100\% | ०\% | Pass |
|  | 6 F | B2-0604-Bedroom1 | Bedroom | 3.3\% | 1\% | Pass | no | 100\% | ०\% | Pass |
|  | 6 F | B2-0604-Bedroom2 | Bedroom | 4.3\% | 1\% | Pass | no | 100\% | ०\% | Pass |
|  | 6 F | B2-0604-Kitchen | Kitchen | 4.5\% | 2\% | Pass | no | 100\% | ०\% | Pass |
|  | 6 F | B2-0604-Living Dining | Living/Dining | 3.2\% | 1.5\% | Pass | no | 100\% | ०\% | Pass |
|  |  | 12 | 12 | Passing rooms |  |  | 1 | Passing rooms |  | 12 |
| Total number of rooms |  |  | 82 | Number of passing rooms |  | 71 87 | 1 ${ }_{1}$ | 70 |  | 85\% |

Plot 18A


Plot 18A

| Unit | Floor | Room name | Function | ADF | Recommended value | Pass/Fail (room) | ADF of at least $5 \%$ | Sky view | No-Sky Line | Pass/Fail |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 4F | B3-0401-Bedroom1 | Bedroom | 1.7\% | 1\% | Pass | no | 97\% | 3\% | Pass |
|  | 4 F | B3-0401-Bedroom2 | Bedroom | 2.7\% | 1\% | Pass | no | 100\% | o\% | Pass |
|  | 4 F | B3-0401-Kitchen Living Dining | Kitchen/Dining/Living | 3.5\% | 2\% | Pass | no | 100\% | ०\% | Pass |
|  | 4 F | B3-0402-Bedroom1 | Bedroom | 2.1\% | 1\% | Pass | no | 100\% | ०\% | Pass |
|  | 4 F | B3-0402-Kitchen Living Dining | Kitchen/Dining/Living | 3.0\% | 2\% | Pass | no | 100\% | ०\% | Pass |
|  | 4 F | B3-0406-Bedroom1 | Bedroom | 5.5\% | 1\% | Pass | yes | 100\% | ०\% | Pass |
|  | 4F | B3-0406-Kitchen Living Dining | Kitchen/Dining/Living | 2.0\% | 2\% | Pass | no | 98\% | 2\% | Pass |
|  | 4 F | B3-0407-Bedroom1 | Bedroom | 4.0\% | 1\% | Pass | no | 100\% | ०\% | Pass |
|  | 4 F | B3-0407-Bedroom2 | Bedroom | 2.8\% | 1\% | Pass | no | 100\% | ०\% | Pass |
|  | 4 F | B3-0407-Kitchen | Kitchen | 3.5\% | 2\% | Pass | no | 88\% | 12\% | Pass |
|  | 4 F | B3-0407-Living Dining | Living/Dining | 2.0\% | 1.5\% | Pass | no | 100\% | 0\% | Pass |
|  |  | 11 | 11 | Passing rooms | 11 |  | 1 | Passing rooms |  | 11 |
|  | ${ }_{5} \mathrm{~F}$ | B3-0501-Bedroom1 | Bedroom | 2.7\% | 1\% | Pass | no | 100\% | ०\% | Pass |
|  | ${ }_{5} \mathrm{~F}$ | B3-0501-Bedroom2 | Bedroom | 3.8\% | 1\% | Pass | no | 100\% | ०\% | Pass |
|  | ${ }_{5} \mathrm{~F}$ | B3-0501-Kitchen Living Dining | Kitchen/Dining/Living | 4.1\% | 2\% | Pass | no | 100\% | ०\% | Pass |
|  | ${ }_{5} \mathrm{~F}$ | B3-0502-Bedroom1 | Bedroom | 1.8\% | 1\% | Pass | no | 100\% | ०\% | Pass |
|  | ${ }_{5} \mathrm{~F}$ | B3-0502-Kitchen Living Dining | Kitchen/Dining/Living | 3.0\% | 2\% | Pass | no | 100\% | ०\% | Pass |
|  | 5 F | B3-0506-Bedroom1 | Bedroom | 6.2\% | 1\% | Pass | yes | 100\% | ०\% | Pass |
|  | ${ }_{5} \mathrm{~F}$ | B3-0506-Kitchen Living Dining | Kitchen/Dining/Living | 3.3\% | 2\% | Pass | no | 98\% | 2\% | Pass |
|  | ${ }_{5} \mathrm{~F}$ | B3-0507-Bedroom1 | Bedroom | 4.5\% | 1\% | Pass | no | 100\% | ०\% | Pass |
|  | ${ }_{5} \mathrm{~F}$ | B3-0507-Bedroom2 | Bedroom | 3.1\% | 1\% | Pass | no | 100\% | ०\% | Pass |
|  | ${ }_{5} \mathrm{~F}$ | B3-0507-Kitchen | Kitchen | 4.2\% | 2\% | Pass | no | 92\% | 8\% | Pass |
|  | ${ }_{5} \mathrm{~F}$ | B3-0507-Living Dining | Living/Dining | 4.2\% | 1.5\% | Pass | no | 100\% | ०\% | Pass |
|  |  | 11 | 11 | Passing rooms | 11 |  | 1 | Passing rooms |  | 11 |
| Total number of rooms |  |  | 80 | Number of passing rooms |  | $\begin{gathered} 70 \\ 88 \% \end{gathered}$ | $\begin{gathered} 9 \\ 11 \% \end{gathered}$ | 65 |  | 81\% |

## Appendix D

Detailed Sunlight results - Proposed building

## Detailed Sunlight results - North Block - Block1

| Floor | Room name | Window ID | Single/Double/Triple Aspect | Window orientation | Annual APSH |  | Winter APSH |  | Condition |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| BLOCK 1 |  |  |  |  |  |  |  |  |  |
| ${ }_{1} \mathrm{~F}$ | B1-0104-Kitchen Living Dining | 1 | Double | SE | 54.0\% | 57\% | 63.4\% | 69\% | Pass |
| 1 F |  | 2 |  | SE | 56.7\% |  | 68.9\% |  |  |
| 1 F |  | 3 |  | NE | 3.7\% |  | 2.0\% |  |  |
| 1 F | B1-0105-Kitchen Living Dining | 4 | Single | SE | 49.1\% | 49\% | 53.7\% | 54\% | Pass |
|  |  | 4 |  |  | Passing windows |  |  |  | 2 |
| 2 F | B1-0204-Kitchen Living Dining | 5 | Double | SE | 59\% | 61\% | 74.3\% | 76\% | Pass |
| 2 F |  | 6 |  | SE | 61\% |  | 76.5\% |  |  |
| 2 F |  | 7 |  | NE | 4\% |  | 2.0\% |  |  |
| 2 F | B1-0205-Kitchen Living Dining | 8 | Single | SE | 55\% | 55\% | 67.3\% | 67\% | Pass |
| - |  | 4 |  |  | Passing windows |  |  |  | 2 |


| 3 F | B1-0304-Kitchen Living Dining | 9 | Double | SE | 61.7\% | 73\% | 77.2\% | 79\% | Pass |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 3 F |  | 10 |  | SE | 72.6\% |  | 78.9\% |  |  |
| 3 F |  | 11 |  | NE | 4.4\% |  | 2.0\% |  |  |
| 3 F | B1-0305-Kitchen Living Dining | 12 | Single | SE | 58.7\% | 59\% | 71.2\% | 71\% | Pass |


| 4 F | B1-0404-Kitchen Living Dining | 13 | Double | SE | 63.1\% | 65\% | 77.3\% | 79\% | Pass |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 4 F |  | 14 |  | SE | 64.6\% |  | 78.9\% |  |  |
| 4F |  | 15 |  | NE | 5.7\% |  | 2.0\% |  |  |
| 4 F | B1-0405-Kitchen Living Dining | 16 | Single | SE | 59.5\% | 59\% | 71.9\% | 72\% | Pass |
|  |  | 4 |  |  | Passing windows |  |  |  | 2 |



| 6 F | B1-0604-Kitchen Living Dining | 21 | Double | SE | 68.1\% | 68\% | 82.4\% | 84\% | Pass |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 6F |  | 22 |  | SE | 68.4\% |  | 83.8\% |  |  |
| 6F |  | 23 |  | NE | 8.2\% |  | 4.1\% |  |  |
| 6 F | B1-0605-Kitchen Living Dining | 24 | Single | SE | 64.6\% | 65\% | 76.6\% | 77\% | Pass |
|  |  | 4 | Passing windows |  |  |  |  |  | 2 |
| 7 F | B1-0704-Kitchen Living Dining | 25 | Double | SE | 69.4\% | 70\% | 83.0\% | 85\% | Pass |
| 7 F |  | 26 |  | SE | 69.7\% |  | 84.8\% |  |  |
| 7 F |  | 27 |  | NE | 9.2\% |  | 4.4\% |  |  |
| 7 F | B1-0705-Kitchen Living Dining | 28 | Single | SE | 65.5\% | 66\% | 76.6\% | 77\% | Pass |
|  |  | 4 |  |  | Passing windows |  |  |  | 2 |


| 8F | B1-0804-Kitchen Living Dining | 29 | Double | SE |
| :---: | :---: | :---: | :---: | :---: |
| 8F |  | 30 |  | SE |
| 8F |  | 31 |  | NE |
| 8F | B1-0805-Kitchen Living Dining | 32 | Single | SE |


| 70.3\% | 70\% | 83.6\% | 84\% | Pass |
| :---: | :---: | :---: | :---: | :---: |
| 70.4\% |  | 84.5\% |  |  |
| 10.1\% |  | 4.4\% |  |  |
| 66.1\% | 66\% | 76.6\% | 77\% | Pass |


| 9 F | B1-0904-Kitchen Living Dining | 33 | Double | SE |
| :---: | :---: | :---: | :---: | :---: |
| 9 F |  | 34 |  | SE |
| 9 F |  | 35 |  | NE |
| 9 F | B1-0905-Kitchen Living Dining | 36 | Single | SE |


| 70.3\% | 70\% | 83.6\% | 85\% | Pass |
| :---: | :---: | :---: | :---: | :---: |
| 70.4\% |  | 85.5\% |  |  |
| 10.1\% |  | 4.4\% |  |  |
| 66.1\% | 66\% | 76.6\% | 77\% | Pass |
| assing w |  |  |  | 2 |


| 10F | B1-1004-Kitchen Living Dining | 37 | Double | SE |
| :---: | :---: | :---: | :---: | :---: |
| 10F |  | 38 |  | SE |
| 10 F |  | 39 |  | NE |
| 10F | B1-1005-Kitchen Living Dining | 40 | Single | SE |


| 70.3\% | 70\% | 83.6\% | 85\% | Pass |
| :---: | :---: | :---: | :---: | :---: |
| 70.4\% |  | 85.5\% |  |  |
| 10.1\% |  | 4.4\% |  |  |
| 66.1\% | 66\% | 76.6\% | 77\% | Pass |


| 11F | B1-1104-Kitchen Living Dining | 41 | Double | SE |
| :---: | :---: | :---: | :---: | :---: |
| 11F |  | 42 |  | SE |
| 11F |  | 43 |  | NE |
| 11F | B1-1105-Kitchen Living Dining | 44 | Single | SE |


| 70.3\% | 70\% | 83.6\% | 85\% | Pass |
| :---: | :---: | :---: | :---: | :---: |
| 70.4\% |  | 85.5\% |  |  |
| 10.1\% |  | 4.4\% |  |  |
| 66.1\% | 66\% | 76.7\% | 77\% | Pass |


| Floor | Room name | Window ID | Single/Double/Triple Aspect | Window orientation | Annual APSH |  | Winter APSH |  | Condition |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 12 F | B1-1204-Kitchen Living Dining | 45 | Double | SE | 70.3\% | 70\% | 83.6\% | 85\% | Pass |
| 12F |  | 46 |  | SE | 70.1\% |  | 85.5\% |  |  |
| 12 F |  | 47 |  | NE | 10.1\% |  | 4.4\% |  |  |
| 12F | B1-1205-Kitchen Living Dining | 48 | Single | SE | 66.3\% | 66\% | 77.1\% | 77\% | Pass |
|  |  | 4 | Passing windows |  |  |  |  |  | 2 |
| ${ }_{13} \mathrm{~F}$ | B1-1304-Kitchen Living Dining | 49 | Double | SE | 70.1\% | 69\% | 83.6\% | 85\% | Pass |
| ${ }_{13} \mathrm{~F}$ |  | 50 |  | SE | 69.0\% |  | 85.5\% |  |  |
| ${ }_{13} \mathrm{~F}$ |  | 51 |  | NE | 10.1\% |  | 4.4\% |  |  |
| 13F | B1-1305-Kitchen Living Dining | 52 | Single | SE | 66.3\% | 66\% | 77.1\% | 77\% | Pass |
|  |  | 4 | Passing windows |  |  |  |  |  | 2 |
| $1_{4} \mathrm{~F}$ | B1-1404-Kitchen Living Dining | 53 | Double | SE | 66.4\% | 68\% | 83.6\% | 84\% | Pass |
| ${ }_{14} \mathrm{~F}$ |  | 54 |  | SE | 68.2\% |  | 83.6\% |  |  |
| ${ }_{14} \mathrm{~F}$ |  | 55 |  | NE | 11.4\% |  | 4.3\% |  |  |
| ${ }_{14} \mathrm{~F}$ | B1-1405-Kitchen Living Dining | 56 | Single | SE | 65.2\% | 65\% | 77.1\% | 77\% | Pass |
|  |  | 4 |  |  | Passing windows |  |  |  | 2 |

## Detailed Sunlight results - North Block - Block 2

| Floor | Room name | Window ID | Single/Double/Triple Aspect | Window orientation | Annual APSH |  | Winter APSH |  | Condition |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| BLOCK 2 |  |  |  |  |  |  |  |  |  |
| 1 F | B2-0103-Living Dining | 57 | Double | SE | 25.7\% | 26\% | 32.5\% | 33\% | Pass |
| 1 F |  | 58 |  | NW | 0.2\% |  | 0.0\% |  |  |
| 1 F | B2-0104-Living Dining | 59 | Double | SE | 24.9\% | 28\% | 26.7\% | 27\% | Pass |
| 1 F |  | 60 |  | NW | 3.0\% |  | 0.0\% |  |  |
|  |  | 4 | Passing windows |  |  |  |  |  | 2 |
| 2 F | B2-0203-Living Dining | 61 | Double | SE | 29.0\% | 29\% | 37.8\% | 38\% | Pass |
| 2 F |  | 62 |  | NW | 0.2\% |  | 0.0\% |  |  |
| 2 F | B2-0204-Living Dining | 63 | Double | SE | 28.4\% | 34\% | 34.9\% | 35\% | Pass |
| 2 F |  | 64 |  | NW | 5.3\% |  | 0.0\% |  |  |
|  |  | 4 | Passing windows |  |  |  |  |  | 2 |
| 3 F | B2-0303-Living Dining | 65 | Double | SE | 32.2\% | 33\% | 45.6\% | 46\% | Pass |
| 3 F |  | 66 |  | NW | 0.5\% |  | 0.0\% |  |  |
| 3 F | B2-0304-Living Dining | 67 | Double | SE | 31.9\% | 41\% | 43.1\% | 43\% | Pass |
| 3 F |  | 68 |  | NW | 9.3\% |  | 0.0\% |  |  |
|  |  | 4 | Passing windows |  |  |  |  |  | 2 |
| 4 F | B2-0403-Living Dining | 69 | Double | SE | 33.2\% | 35\% | 46.9\% | 49\% | Pass |
| 4 F |  | 70 |  | NW | 2.0\% |  | 1.6\% |  |  |
| 4 F | B2-0404-Living Dining | 71 | Double | SE | 35.0\% | 48\% | 48.9\% | 51\% | Pass |
| 4 F |  | 72 |  | NW | 13.3\% |  | 1.8\% |  |  |
|  |  | 4 | Passing windows |  |  |  |  |  | 2 |
| 5F | B2-0503-Living Dining | 73 | Double | SE | 35.7\% | 43\% | 47.9\% | 52\% | Pass |
| 5F |  | 74 |  | NW | 6.8\% |  | 4.3\% |  |  |
| ${ }_{5} \mathrm{~F}$ | B2-0504-Living Dining | 75 | Double | SE | 36.9\% | 57\% | 50.8\% | 60\% | Pass |
| 5F |  | 76 |  | NW | 20.4\% |  | 8.9\% |  |  |
|  |  | 4 | Passing windows |  |  |  |  |  | 2 |
| 6 F | B2-0603-Living Dining | 77 | Double | SE | 39.5\% | 60\% | 49.3\% | 60\% | Pass |
| 6 F |  | 78 |  | SE | 20.6\% |  | 10.9\% |  |  |
| 6F | B2-0604-Living Dining | 79 | Double | SE | 42.3\% | 66\% | 57.3\% | 68\% | Pass |
| 6 F |  | 80 |  | SE | 23.6\% |  | 10.9\% |  |  |
|  |  | 4 |  |  | Passing windows |  |  |  | 2 |

## Detailed Sunlight results - North Block - Block 3

| Floor | Room name | Window ID | Single/Double/Triple Aspect | Window orientation | Annual APSH |  | Winter APSH |  | Condition |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\mathrm{BLOCK}_{3}$ |  |  |  |  |  |  |  |  |  |
| 1 F | B3-0101-Kitchen Living Dining | 81 | Triple | SE | 39.6\% | 40\% | 27.9\% | 28\% | Pass |
|  |  | 82 |  | SW | 6.2\% |  | 12.8\% |  |  |
|  |  | 83 |  | NW | 0.0\% |  | 0.0\% |  |  |
| 1 F | B3-0102-Kitchen Living Dining | 84 | Double | SE | 40.2\% | 40\% | 34.6\% | 35\% | Pass |
|  |  | 85 |  | SW | 6.9\% |  | 13.0\% |  |  |
| 1 F | B3-0103-Kitchen Living Dining | 86 | Double | SE | 48.4\% | 59\% | 53.3\% | 68\% | Pass |
|  |  | 87 |  | SE | 49.3\% |  | 51.0\% |  |  |
|  |  | 88 |  | SW | 30.6\% |  | 48.1\% |  |  |
|  |  | 89 |  | SE | 28.6\% |  | 50.9\% |  |  |
|  |  | 90 |  | SW | 59.0\% |  | 67.6\% |  |  |
|  |  | 10 | Passing windows |  |  |  |  |  | 3 |


| 2F | B3-0201-Kitchen Living Dining | 91 | Triple | SE |
| :---: | :---: | :---: | :---: | :---: |
|  |  | 92 |  | SW |
|  |  | 93 |  | NW |
| 2 F | B3-0202-Kitchen Living Dining | 94 | Double | SE |
|  |  | 95 |  | SW |
| 2 F | B3-0203-Kitchen Living Dining | 96 | Double | SE |
|  |  | 97 |  | SE |
|  |  | 98 |  | SW |
|  |  | 99 |  | SE |
|  |  | 100 |  | SW |
| 10 |  |  |  |  |
| $3 F$ | B3-0301-Kitchen Living Dining | 101 | Triple | SE |
|  |  | 102 |  | SW |
|  |  | 103 |  | NW |
| 3 F | B3-0302-Kitchen Living Dining | 104 | Double | SE |
|  |  | 105 |  | SW |
| 3 F | B3-0303-Living | 106 | Double | SE |
|  |  | 107 |  | SW |


| 43.4\% | 43\% | 36.7\% | 37\% | Pass |
| :---: | :---: | :---: | :---: | :---: |
| 6.6\% |  | 13.7\% |  |  |
| 0.3\% |  | 0.0\% |  |  |
| 47.4\% | 47\% | 46.0\% | 46\% | Pass |
| 7.2\% |  | 13.8\% |  |  |
| 55.7\% | 63\% | 60.9\% | 73\% | Pass |
| 56.8\% |  | 62.1\% |  |  |
| 33.3\% |  | 54.4\% |  |  |
| 30.0\% |  | 54.4\% |  |  |
| 63.1\% |  | 72.5\% |  |  |


| Passing windows |  |  |  | 3 |
| :---: | :---: | :---: | :---: | :---: |
| 47.8\% | 48\% | 47.8\% | 48\% | Pass |
| 6.6\% |  | 13.7\% |  |  |
| 3.9\% |  | 0.0\% |  |  |
| 52.8\% | 53\% | 54.6\% | 55\% | Pass |
| 7.2\% |  | 13.8\% |  |  |
| 63.7\% | 64\% | 72.6\% | 72.6\% | Pass |
| 36.6\% |  | 59.0\% |  |  |


| 4F | B3-0401-Kitchen Living Dining | 108 | Triple | SE |
| :---: | :---: | :---: | :---: | :---: |
|  |  | 109 |  | SW |
|  |  | 110 |  | NW |
| 4F | B3-0402-Kitchen Living Dining | 111 | Double | SE |
|  |  | 112 |  | SW |


| 54.7\% | 55\% | 64.9\% | 65\% | Pass |
| :---: | :---: | :---: | :---: | :---: |
| 6.6\% |  | 13.7\% |  |  |
| 10.3\% |  | 0.0\% |  |  |
| 58.9\% | 59\% | 65.8\% | 65.8\% | Pass |
| 12.6\% |  | 25.6\% |  |  |


| ${ }_{5} \mathrm{~F}$ | B3-0501-Kitchen Living Dining | 113 | Triple | SE |
| :---: | :---: | :---: | :---: | :---: |
|  |  | 114 |  | SW |
|  |  | 115 |  | NW |
| 5F | B3-0502-Kitchen Living Dining | 116 | Double | SE |
| ${ }_{5} \mathrm{~F}$ |  | 117 |  | NW |


| 58.2\% | 58\% | 74.2\% | 74\% | Pass |
| :---: | :---: | :---: | :---: | :---: |
| 12.8\% |  | 13.6\% |  |  |
| 18.6\% |  | 5.6\% |  |  |
| 62.8\% | $63 \%$ | 74.4\% | 74.4\% | Pass |
| 12.2\% |  | 27.7\% |  |  |




[^0]:    Table 4: Results of the Sunlight Assessment of Plot 18

[^1]:    Table 9: Sunlight Assessment - Residential units in the North Block - Summary of the results

[^2]:    

