10.6 Discussion

The purpose of the ADF calculations is to quantify an overall percentage of units which exceeds the BRE recommendations and the BS 8206-2:2008 recommendations. The objective of the design team is to maximise the number of units which exceed the BRE and the BS 8206-2:2008 recommendations.

As noted previously in Section 10.2, where there are combined living/kitchen/dining areas within the development, these have been assessed as whole spaces against a 2% ADF target.

The ADF results are summarised in the following tables:

Apartment Buildings:

Rooms Tested	No. Rooms
Total Bedrooms Tested	48
Total Living/Kitchen/Dining Areas Tested	26
Total Spaces Tested	74

Whole Space For L/K/D against 2% ADF Target		%
Bedrooms Pass	48	100%
L/K/D Areas Pass	23	88%
Total Pass	**71**	**96%**

Across the proposed development, 96% of the tested rooms within the apartment block are achieving Average Daylight Factors (ADF) above the BRE and BS 8206-2:2008 guidelines when Living/Kitchen/Dining spaces are assessed as whole rooms against a 2% ADF target.

10.7 Alternative ADF Target for Combined Living, Kitchen and Dining Spaces

With regards to internal daylighting, Section 6.7 of the Sustainable Urban Housing: Design Standards for New Apartments December 2020, states the following:

"Where an applicant cannot fully meet all of the requirements of the daylight provisions above, this must be clearly identified and a rationale for any alternative, compensatory design solutions must be set out, which planning authorities should apply their discretion in accepting taking account of its assessment of specific (sic). This may arise due to design constraints associated with the site or location and the balancing of that assessment against the desirability of achieving wider planning objectives. Such objectives might include securing comprehensive urban regeneration and or an effective urban design and streetscape solution."

Furthermore, Section 3.2 of the Urban Development and Building Heights: Guidelines for Planning Authorities December 2018, states the following:

Where a proposal may not be able to fully meet all the requirements of the daylight provisions above, this must be clearly identified and a rationale for any alternative, compensatory design solutions must be set out, in respect of which the planning authority or An Bord Pleanála should apply their discretion, having regard to local factors including specific site constraints and the balancing of that assessment against the desirability of achieving wider planning objectives. Such objectives might include securing comprehensive urban regeneration and or an effective urban design and streetscape solution.

Based on the above statements, compensatory measures have been incorporated into the design of the proposed development where rooms do not achieve the daylight provision targets in accordance with the standards they were assessed against. The compensatory measures are summarised as follows:

- 70% of the apartment units have a floor area 10% greater than the minimum floor area requirements as required by the Design Standards (Dec 2020). Note that larger floor areas make it more difficult to achieve the recommended daylight levels. However, larger windows have been incorporated into the design which also improves the view out for the building occupants.
- 80% of the apartment units are dual aspect which is above the 33% minimum requirement as required by the Design Standards (Dec 2020). As a result, more apartment units than the recommended minimum will achieve quality daylight from dual-aspect orientations.
- More than double the minimum requirement of communal open space has been provided above the areas outlined by the Design Standards (Dec 2020).

There is also a need to create a high-quality urban streetscape along the main street, requiring increased height along this road to create an appropriate presence. The daylight results achieved are to a high standard having regard to the fact that the above referenced factors (increased height and larger apartment sizes) render it more difficult to achieve target values for daylight performance.

The following tables summarize the overall compliance rate across the development based on an alternative ADF value of 1.5% for combined Living, Kitchen and Dining areas. A 100% compliance rate is achieved across all tested rooms within the apartment blocks.

Rooms Tested	No. Rooms

Total Bedrooms Tested	48
Total Living/Kitchen/Dining Areas Tested	26
Total Spaces Tested	74

Whole Space For L/K/D against Alternative 1.5% ADF Design Value		**%**
Bedrooms Pass	48	100%
L/K/D Areas Pass	26	100%
Total Pass	**74**	**100%**

11 Conclusion

The following can be concluded based on the studies undertaken:

11.1 Shadow Analysis

The following observations are observed with regards to the shadow analysis carried out on the proposed Finches Development when comparing it to the existing situation.

Nielstown Road – Chaplains Row

No additional shading visible from the proposed development on these existing residential properties during the months of June and December with minor additional shading noted early morning in March.

Colinstown Road – Chaplains Terrace

No additional shading visible from the proposed development on these existing residential properties during the months of March and June. Minor additional shading noted mid-morning and early afternoon in December.

Colinstown Road – Chaplains Place

No additional shading visible from the proposed development on these existing residential properties during the months of March and December. Minor additional shading noted late evening in June.

Rowlagh Health Centre

No additional shading visible from the proposed development on this existing building during the months of March, June and December.

The comments above can be further quantified by the analysis carried out within the Sunlight to Existing Amenity Areas, Sunlight to Existing Buildings and Daylight to Existing Buildings sections of this report.

11.2 Sunlight to Amenity Areas

Section 3.3.17 of BRE's Site Layout Planning for Daylight and Sunlight states that for a space to appear adequately sunlit throughout the year, at least half (50%) of the garden or amenity area should receive at least 2 hours of sunlight on the 21st of March.

Existing Private Amenity Areas

The results demonstrate the existing neighbouring amenity areas will not be affected by the proposed development and will continue to receive the same level of sunlight even with the proposed development in place. 5 out of 5 of the Existing Private Amenity areas on Nielstown Road – Chaplains Row are achieving the recommended 2 hours of sunlight on the 21st of March.

Proposed Communal Amenity Areas

For the Proposed Communal Amenity areas, 65% of the combined areas are achieving more than 2 hours of sunlight on the 21st of March across 50% of their area. The individual areas themselves are also above the 50% minimum recommendation, thus the Proposed Communal Amenity provisions are meeting the recommended targets and are high quality spaces in terms of sunlight.

11.3 Sunlight to Existing Buildings

This study considers the proposed scheme and tests if the APSH results for the windows of the adjacent existing buildings are greater than 25% annual and 5% winter sunlight and are greater than 0.8 times their former value with the proposed development in place and less there is less than a 4% reduction of the annual probable sunlight hours.

Of the 53 points tested, 100% meet the BRE guidelines in both instances (annual & winter).

11.4 Sunlight to Proposed Development

Within the BS 8206-2:2008 standard, when discussing annual probable sunlight hours regarding proposed developments, it is noted that:

"The degree of satisfaction is related to the expectation of sunlight. If a room is necessarily North facing or if the building is in a densely-built urban area, the absence of sunlight is more acceptable than when its exclusion seems arbitrary".

This is also reflected in the correlating BRE guidance which notes:

"The BS 8206-2 criterion applies to rooms of all orientations, although if a room faces significantly north of due east or west it is unlikely to be met."

Of the 29 no. points tested, 20 no. points (69%) meet the BRE recommended values. The windows that do not meet this recommendation are predominantly as a result of their orientation, i.e. north facing windows (View 3) and the provision of a balcony. When the north facing spaces are excluded the overall percentage rises to 91%. This percentage increases again to 100% for the winter period in isolation which is when sunlight is most valued because of the limited availability at this time of year.

11.5 Daylight to Existing Buildings

The Vertical Sky Component for 97% (93 of 96) of the points tested have a value greater than 27% or not less than 0.8 times their former value (that of the Existing Situation). The three values which fall below the criteria are in the range 25.85 – 26.79 and as such are only just below the required 27% and would be classed as a minor adverse impact.

11.6 Daylight to Proposed Development

Across the proposed development, 96% of the tested rooms are achieving Average Daylight Factors (ADF) in accordance with the BRE Guide / BS 8206-2:2008 when Living/Kitchen/Dining spaces are assessed as whole rooms against a 2% ADF target and Bedrooms against a 1% ADF target. The rooms that do not achieve this target are as a result of their location at corners and the provision of balconies. However, overall the quality of daylight provision across the development can be considered high.

For combined Living/Kitchen/Dining areas, the living area is typically treated as the main area of activity, with the kitchen being placed at the back of the space. This design decision is understandable as the kitchen area is typically a transient space as its primary functional purpose is to serve as a food preparation area. Additionally, not every space within a commercially viable apartment development can be in direct connection with an exterior elevation, making the kitchen the obvious choice for this position given that it is a transient space that will require supplementary electric lighting.

Compensatory Measures

With regards to internal daylighting, Section 6.7 of the Sustainable Urban Housing: Design Standards for New Apartments December 2020, states the following:

"Where an applicant cannot fully meet all of the requirements of the daylight provisions above, this must be clearly identified and a rationale for any alternative, compensatory design solutions must be set out, which planning authorities should apply their discretion in accepting taking account of its assessment of specific (sic). This may arise due to design constraints associated with the site or location and the balancing of that assessment against the desirability of achieving wider planning objectives. Such objectives might include securing comprehensive urban regeneration and or an effective urban design and streetscape solution."

Furthermore, Section 3.2 of the Urban Development and Building Heights: Guidelines for Planning Authorities December 2018, states the following:

Where a proposal may not be able to fully meet all the requirements of the daylight provisions above, this must be clearly identified and a rationale for any alternative, compensatory design solutions must be set out, in respect of which the planning authority or An Bord Pleanála should apply their discretion, having regard to local factors including specific site constraints and the balancing of that assessment against the desirability of achieving wider planning objectives. Such objectives might include securing comprehensive urban regeneration and or an effective urban design and streetscape solution.

Based on the above statements, compensatory measures have been incorporated into the design of the proposed development where rooms do not achieve the daylight provision targets in accordance with the standards they were assessed against. The compensatory measures are summarised as follows:

- 70% of the apartment units have a floor area 10% greater than the minimum floor area requirements as required by the Design Standards (Dec 2020). Note that larger floor areas make it more difficult to achieve the recommended daylight levels. However, larger windows have been incorporated into the design which also improves the view out for the building occupants.
- 80% of the apartment units are dual aspect which is above the 33% minimum requirement as required by the Design Standards (Dec 2020). As a result, more apartment units than the recommended minimum will achieve quality daylight from dual-aspect orientations.
- More than double the minimum requirement of communal open space has been provided above the areas outlined by the Design Standards (Dec 2020).

There is also a need to create a high-quality urban streetscape along the main street, requiring increased height along this road to create an appropriate presence. The daylight results achieved are to a high standard having regard to the fact that the above referenced factors (increased height and larger apartment sizes) render it more difficult to achieve target values for daylight performance.

The overall compliance rate across the development based on an alternative ADF value of 1.5% for combined Living, Kitchen and Dining areas is 100% across all tested rooms within the apartment blocks.

11.7 Discussion

It is important to note that the recommendations within the BRE Guide are not mandatory and the guide itself states *"although it gives numerical guidelines these should be interpreted flexibly because natural lighting is only one of many factors in site layout design"*.

Whilst the results shown relate to the criteria as laid out in the BRE Guide, it is important to note that the BRE targets are guidance only and should therefore be used with flexibility and caution when dealing with different types of sites.

In addition, the foreword of BS 8206-2:2008 also states *"The aim of the standard is to give guidance to architects, builders and others who carry out lighting design. It is recognised that lighting is only one of many matters that influence fenestration. These include other aspects of environmental performance (such as noise, thermal equilibrium and the control of energy use), fire hazards, constructional requirements, the external appearance and the surroundings*

of the site. The best design for a building does not necessarily incorporate the ideal solution for any individual function. For this reason, careful judgement needs to be exercised when using the criteria given in the standard for other purposes, particularly town planning control."

Taking all of the above information into account and based on the results from each of the assessments undertaken, the proposed development performs well when compared to the recommendations in the BRE Guide 2nd Edition and BS 8206-2:2008.