DAYLIGHT, SUNLIGHT & OVERSHADOWING

77 Avenue Road

Produced by XCO2 for Montagu Evans

March 2018

XCO2
56 Kingsway Place, Sans Walk
London EC1R 0LU

+44 (0)20 7700 1000
mail@xco2.com
xco2.com

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	01						
Remarks	Draft	Final					
Prepared by	HP	HP					
Checked by	TS	TS					
Authorised by	RM	RM					
Date	22/03/2018	28/03/2018					
Project reference	9.110	9.110					

EXECUTIVE SUMMARY

The daylight, sunlight and overshadowing analysis indicates that there will not be a significant impact on surrounding properties arising from the proposed development at 77 Avenue Road.

Daylight and Sunlight analysis was carried out for the proposed development at 77 Avenue Road, located within the London Borough of Camden. This report outlines the results of the analysis for the planning application, assessing the daylight and sunlight impacts on surrounding developments.

The methodology set out in this report is in accordance with BRE's "Site Layout Planning for Daylight and Sunlight, A Guide to Good Practice" by PJ Littlefair (2011) which is accepted as good practice by Planning Authorities.

The following assessments were carried out:

- Daylight: 25 Degree Line
- Daylight: Vertical Sky Component
- Daylight: Mirror Image
- Sunlight: Sunlight Access
- Sunlight: Sunlight Overshadowing

Computer modelling software was used to carry out the assessments. The model used was based on drawings and a 3D model provided by the design team together with desktop research on neighbouring properties.

DAYLIGHT ASSESSMENT

A total of 67 windows from buildings surrounding the site were highlighted as being in close proximity to, and facing the proposed development.

Daylighting levels for potentially affected windows of surrounding developments by the proposed development at 77 Avenue Road were found to be acceptable.

In summary,

- 14 out of 67 windows passed the 25-degree line test;
- 43 of the remaining 53 windows achieved VSCs greater than 27%;
- 4 windows achieved relative VSCs over 0.8 of their former values
- 4 windows attained relative VSCs of over 0.8 of the mirror image values

Of the remaining 2 windows, 1 window is considered to serve a non-habitable space expected to be a hallway space – identified through desktop research. The other window has been recognised as serving a multi-aspect living room which is served by 3 west facing windows that are seen to achieve good levels of daylight.

Therefore, the development is not anticipated to have any notable impact on the daylight received by neighbouring properties.

SUNLIGHT ASSESSMENT

A total of 38 windows from buildings surrounding the site were assessed for sunlight access. The analysis indicated that 6 of the 38 windows passed the 25-degree line test. 31 of the remaining 32 windows satisfied the BRE criteria for annual probable sunlight hours (APSH) and winter probable sunlight hours (WPSH). The remaining south facing window experiences less than a 4% reduction in annual sunlight.

Therefore, the proposed development at 77 Avenue Road is not considered to have any notable impact on sunlight access to windows of surrounding developments.

OVERSHADOWING ASSESSMENT

A solar access analysis was undertaken for a total of 2 amenity spaces for the full 24 hours on 21st of March. All the amenity spaces are predicted to have a minimum of 2 hours of sunlight on 21 March over at least 50% of their area.

The proposed development is therefore not considered to have any significant impact on sunlight access to the amenity spaces surrounding the site.

Table 1: Daylight results summary

Number of windows tested	67
Number of windows passing the 25° initial test	14
Number of windows with a VSC higher than 27%	43
Number of windows with a VSC of at least 0.8 of existing value	4
Number of windows with a VSC of at least 0.8 of the mirror image value	4
Number of windows associated with dual aspect rooms	1
Number of windows connected to non-habitable spaces	1
Number of windows that do not meet any of the above criteria	0

Table 2: Sunlight results summary

Total number of windows facing within 90° of south	38
Number of south facing windows passing the 25° initial test	6
Number of south facing windows with APSH greater than 25% and WPSH greater than 5%, or of at least 0.8 of their former existing value	31
Number of south facing windows with less than 4% reduction in annual sunlight	1
Number of windows that do not meet any of the above criteria	0

INTRODUCTION

The site is located in dense urban environment and the interpretation of the results requires careful consideration of the BRE guidance.

This report assesses the daylight, sunlight and overshadowing impacts the proposed new build residential development may have on the existing properties and open spaces surrounding the site.

The approach is based on the BRE's "*Site Layout Planning for daylight and sunlight, a Guide to good practice"* PJ Littlefair 2011, which is generally accepted as good practice by Town and Country Planning authorities.

It should be noted that although the numerical values stated by the BRE provide useful guidance to designers, consultants and planning officials, these are purely advisory and may vary depending on context. Dense urban areas, for example, may often experience greater site constraints when compared to low-rise suburban areas, and thus a high degree of obstruction is often unavoidable. Appendix F of the BRE document is dedicated to the use of alternative values and it also demonstrates the manner in which the criteria for skylight was determined for the summary given above, i.e. the need for 27% vertical sky component for adequate daylighting.

This figure of 27% was achieved using the following methodology: a theoretical road was created with two storey terraced houses upon either side, approximately twelve metres apart. The houses have windows at ground and first floor level, and a pitched roof with a central ridge. Thereafter, a reference point was taken at the centre of a ground floor window of one of the properties and a line was drawn from this point to the central ridge of the property on the other side of the road.

The angle of this line equated to 25 degrees (the 25 degrees referred to in the summaries given with reference to the criteria for skylight). This 25-degree line obstructs 13% of the totally unobstructed sky available, leaving a resultant figure of 27% which is deemed to give adequate daylighting. This figure of 27% is the recommended criteria referred to in this report. It will be readily appreciated that in an urban area, this kind of urban form and setting is unlikely and impractical.

Furthermore, the BRE guidance also focuses on 'relative change' which is likely to be exaggerated given the low-rise nature of the existing structures on site. Where there is more than a 20% reduction in VSC, this does not mean that the level of daylight will be unacceptable but, rather, that there may be a noticeable change in daylight levels to the occupants.

Therefore, given the location of the proposed development, with the height of the immediate neighbouring buildings to the east and west being more than two storeys in height, and the currently low-rise nature of the existing site, it is important to take into account that, although the 27% VSC target is the standard criterion available, it is not fully applicable to the development and that a lower VSC target is acceptable.

SITE

The proposed development is a residential family home located at 77 Avenue Road in the London Borough of Camden. The site is approximately 450m south east of Swiss Cottage underground station at the intersection of Avenue road, Queens Grove and Elsworthy Road.

The site proposal includes, at the basement levels, a garage pool and gym facilities as well as games areas, studies and staff accommodation. The ground and upper floors will be internally redesigned and a roof extension is proposed to provide additional living areas.

Site analysis was carried out to identify any potential daylight and sunlight impacts on the surrounding development. Relevant properties tested in this report adjacent to the proposed development are annotated in the figure below.

The following neighbouring buildings were tested in detail:

- 79 Avenue Road
- 75 Avenue Road
- 60 Avenue Road
- 58 Avenue Road
- 56 Avenue Road

Figure 1: Site location and neighbouring buildings assessed

METHODOLOGY

The assessment is based on guidelines set out in the BRE "Site Layout Planning for Daylight and Sunlight, A Guide to Good Practice" (2011).

DAYLIGHT

DAYLIGHT TO SURROUNDING WINDOWS

A plane is drawn at 25 degrees from the horizontal, at the centre of an existing window. If the new development intersects with this plane, the internal daylight levels of the surrounding windows may be reduced. When an obstruction of the 25-degree plane occurs, a more detailed assessment involving the Vertical Sky Component of the affected window would need to be carried out.

ABSOLUTE VERTICAL SKY COMPONENT (VSC)

The Vertical Sky Component is the ratio of the direct sky illuminance falling on the vertical wall at a reference point, to the simultaneous horizontal illuminance under an unobstructed sky. To maintain good levels of daylight, the Vertical Sky Component of a window needs to be 27% or greater. If the VSC is less than 27%, then a comparison of existing and proposed levels of VSC level would need to be calculated.

RELATIVE VERTICAL SKY COMPONENT

Good levels of daylighting can still be achieved if VSC levels are within 0.8 of their former value.

MIRROR IMAGE

Appendix F of the BRE Guide details alternative methods of setting daylight and sunlight targets for windows that belong to a dense urban context.

For the analysis carried out within this report, the standard criteria available were not deemed to be suitable for all neighbouring windows. It should be highlighted that within the BRE guidelines, it is stated that additional considerations should be taken into account for such windows. In particular, the guide states that:

> *"to ensure that new development matches the height and proportions of existing buildings, the VSC and APSH targets for these windows could be set to those for a 'mirror image' building using the same height and size, an equal distance away on the other side of the boundary".*

For this project, this method of analysis is deemed necessary and applicable due to the close proximity of the neighbouring buildings at 79 and 75 Avenue Road to the property boundary.

SUNLIGHT

ACCESS TO SUNLIGHT (APSH)

The BRE test relates mainly to existing living room windows, although care should be taken to ensure that kitchens and bedrooms receive reasonable amounts of sunlight. Annual Probable Sunlight Hour (APSH) assessment is carried out when there is an obstruction within the 25-degree line and the window is facing within 90 degrees due south. The APSH assessment states that the existing living room window should receive at least:

- 25% of annual probable sunlight hours (APSH) throughout the year;
- 5% of annual probable sunlight hours during the winter months;
- not less than 80% of its former sunlight hours during either period;
- not more than a 4% reduction in sunlight received over the whole year (APSH).

The term 'annual probable sunlight hours' refers to the long-term average of the total of hours during a year in which direct sunlight reaches the unobstructed ground (when clouds are taken into account). The 'winter probable sunlight hours' is used to mean the same but only for the winter period (21 September – 21 March).

OVERSHADOWING

SUNLIGHT TO AMENITY SPACES

Open spaces should retain a reasonable amount of sunlight throughout the year. The BRE states that for an amenity space to "appear adequately sunlit throughout the year, at least half of the area should receive at least 2 hours of sunlight on 21 March". Where this is not achieved, the difference between the area achieving 2 hours of sun on 21 March should be no less than 0.8 times its former value.

DAYLIGHT ASSESSMENT

The analysis indicates that the proposed development is unlikely to have a significant impact on neighbouring windows in terms of daylight. The following subsections detail the findings for each neighbouring building individually.

79 AVENUE ROAD

This building is located to the north west of the proposed development. Figure 2 shows potentially affected windows.

The results show that of the 30 windows assessed at 79 Avenue Road, 26 pass the initial 25° line test (figure 3). Of the remaining 4 windows, 3 achieve a relative VSC value of at least 0.8 of the existing case. Desktop and visual survey have been carried out, which has identified the window as to very likely being connected to a non-habitable room, a hallway. The table below summarises the findings.

Detailed results are presented in Appendix B - Detailed Daylight Results.

Figure 2: 79 Avenue Road windows

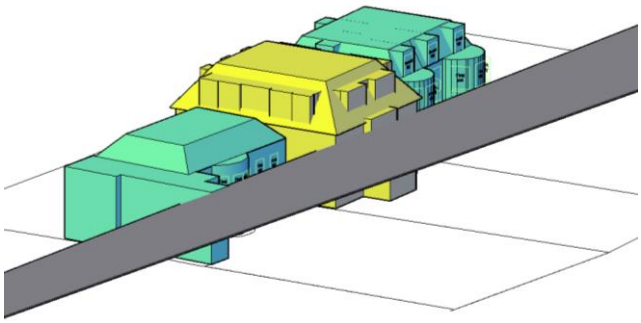


Figure 3: 25° line test results

Table 3: Daylight results summary for 79 Avenue Road

Number of windows tested	30
Number of windows passing the 25° initial test	26
Number of windows with a VSC higher than 27%	0
Number of windows with a VSC of at least 0.8 of existing value	3
Number of windows expected to be connected to non-habitable spaces	1
Number of windows that do not meet any of the above criteria	0

75 AVENUE ROAD

This building is located to the south of the proposed development. Figure 4 shows potentially affected windows.

The results show a total of 31 windows were assessed at 75 Avenue road for daylight access. Of the 31 windows 8 pass the initial 25° line test (figure 5), 17 attain a VSC of 27% or more and one window achieves a relative VSC of at least 0.8 of the existing value.

The remaining 5 windows were assessed against a mirror image of 75 Avenue Road along the property boundary. This highlighted that 4 windows were seen to achieve a VSC of at least 0.8 of the mirror image value compared to the proposed development.

The final window achieves a relative mirror image VSC value of 0.73; however, this is not considered to have an impact on daylight access as the room that this window serves is dual aspect and is associated with 3 additional west facing windows, which are expected to achieve good levels of daylight. Details of the internal layouts for this property were taken from the Camden Planning Portal (Ref 2016/1808/P). The table below summarises the findings.

Detailed results are presented in Appendix B - Detailed Daylight Results.

Figure 4: 75 Avenue Road Windows

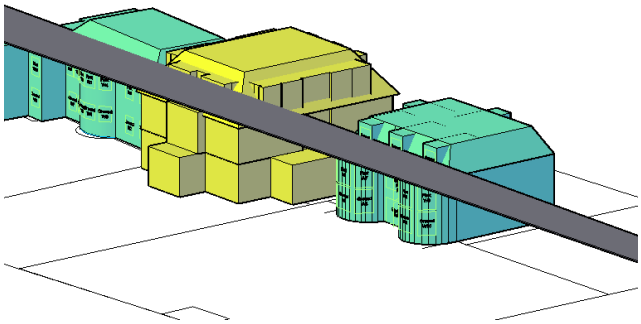


Figure 5: 25° line test results

Table 4: Daylight results summary for 75 Avenue Road

Number of windows tested	31
Number of windows passing the 25° initial test	8
Number of windows with a VSC higher than 27%	17
Number of windows with a VSC of at least 0.8 of existing value	1
Number of windows with a VSC of at least 0.8 of the mirror image value	4
Number of windows associated with dual aspect rooms achieving good levels of daylight	1
Number of windows that do not meet any of the above criteria	0

60 AVENUE ROAD

This building is located to the south of the proposed development. Figure 6 shows potentially affected windows.

The results show that 1 representative ground floor window, assumed to be the worst case example, was assessed for daylight impacts. This window passes the initial 25° line test (figure 7) and therefore it can be inferred that the other windows serving this property which face the site will still receive good levels of daylight once the proposed development has been built. The table below summarises the findings.

Detailed results are presented in Appendix B - Detailed Daylight Results.

Figure 6: 60 Avenue Road Windows

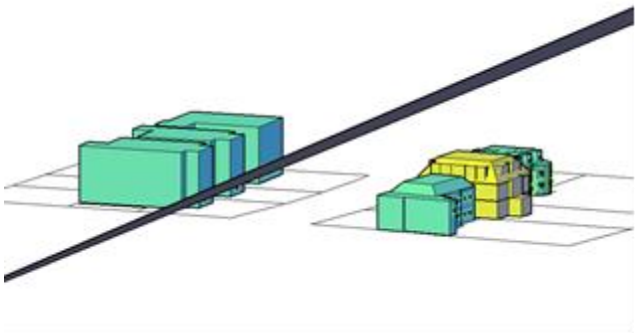


Figure 7: 25° line test results

Table 5: Daylight results summary for 60 Avenue Road

Number of windows tested	1
Number of windows passing the 25° initial test	1
Number of windows with a VSC higher than 27%	0
Number of windows with a VSC of at least 0.8 of existing value	0
Number of windows that do not meet any of the above criteria	0

58 AVENUE ROAD

This building is located to the south of the proposed development. Figure 8 shows potentially affected windows.

The results show that 1 representative ground floor window, assumed to be the worst case example, was assessed for daylight impacts. This window is seen to pass the initial 25° line test (figure 9) and therefore it can be inferred that the other windows facing the proposed development will receive good levels of daylight. The table below summarises the findings.

Detailed results are presented in Appendix B - Detailed Daylight Results.

Figure 8: 58 Avenue Road Windows

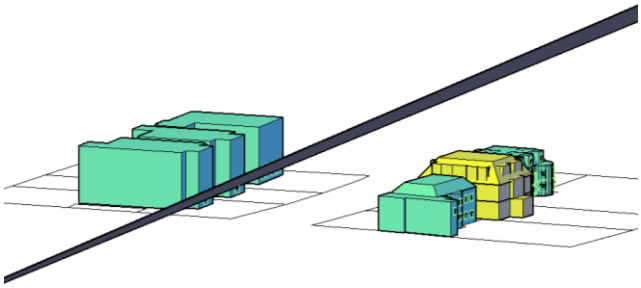


Figure 9: 25°-line test results

Table 6: Daylight results summary for 58 Avenue Road

Number of windows tested	1
Number of windows passing the 25° initial test	1
Number of windows with a VSC higher than 27%	0
Number of windows with a VSC of at least 0.8 of existing value	0
Number of windows that do not meet any of the above criteria	0

56 AVENUE ROAD

This building is located to the south of the proposed development. Figure 10 shows potentially affected windows.

The results show that 4 representative ground floor windows, assumed to be the worst case examples, were assessed for daylight impacts. These windows pass the initial 25° line test (figure 11) and therefore it can be inferred that all other windows in this building facing the proposed development will receive good levels of daylight. The table below summarises the findings.

Detailed results are presented in Appendix B - Detailed Daylight Results.

Figure 10: 56 Avenue Road Windows

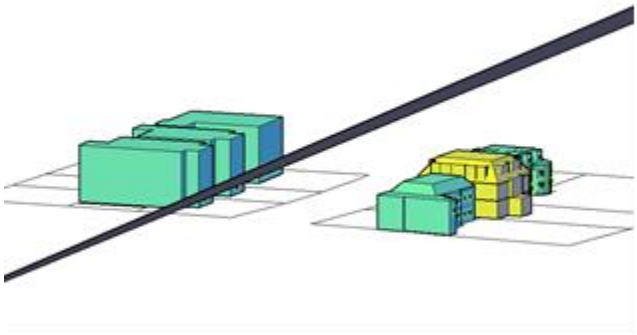


Figure 11: 25°-line test results

Table 7: Daylight results summary for 56 Avenue Road

Number of windows tested	4
Number of windows passing the 25° initial test	4
Number of windows with a VSC higher than 27%	0
Number of windows with a VSC of at least 0.8 of existing value	0
Number of windows that do not meet any of the above criteria	0

SUNLIGHT ASSESSMENT

The analysis indicates that the proposed development is unlikely to have a significant impact on neighbouring south facing windows in terms of sunlight.

The BRE guide states that:

"if a living room of an existing dwelling has a main window facing within 90° of due south, and any part of a new development subtends an angle of more than 25° to the horizontal measured from the centre of the window in a vertical section perpendicular to the window, then the sunlighting of the existing dwelling may be adversely affected"

A total of 38 windows from buildings surrounding the site were highlighted as facing the development and within 90° of due south. These windows belong to all the properties included within this assessment.

The analysis indicated that all windows within 90° due south satisfy the BRE criteria for sunlight. The table below shows the results summary. The detailed results can be found in Appendix C - Detailed Sunlight Results.

Overall, the proposed development is not considered to have any notable impact on sunlight access to windows of surrounding developments.

Table 8: Sunlight results summary

Total number of windows facing within 90° of south	38
Number of south facing windows passing the 25° initial test	6
Number of south facing windows with APSH greater than 25% and WPSH greater than 5%, or of at least 0.8 of their former existing value	31
Number of south facing windows with less than 4% reduction in annual sunlight	1
Number of windows that do not meet any of the above criteria	0

OVERSHADOWING ASSESSMENT

The analysis indicates that the proposed development is unlikely to have a significant impact on the sunlight received by neighbouring amenity spaces.

A review of the site plan showed that there are 2 amenity or open spaces in close proximity to the proposed development, as shown in the figure below. A Solar Access Analysis was undertaken on these amenity areas for the full 24 hours on 21 March as set out by the BRE Guide.

The image below illustrates that at least 50% of the analysed spaces will receive more than 2 hours of sunlight on 21 March under proposed conditions, meeting the BRE requirements for overshadowing.

The proposed development is not considered to have any significant impact on sunlight access to neighbouring amenity and open spaces.

A full table of results can be found overleaf.

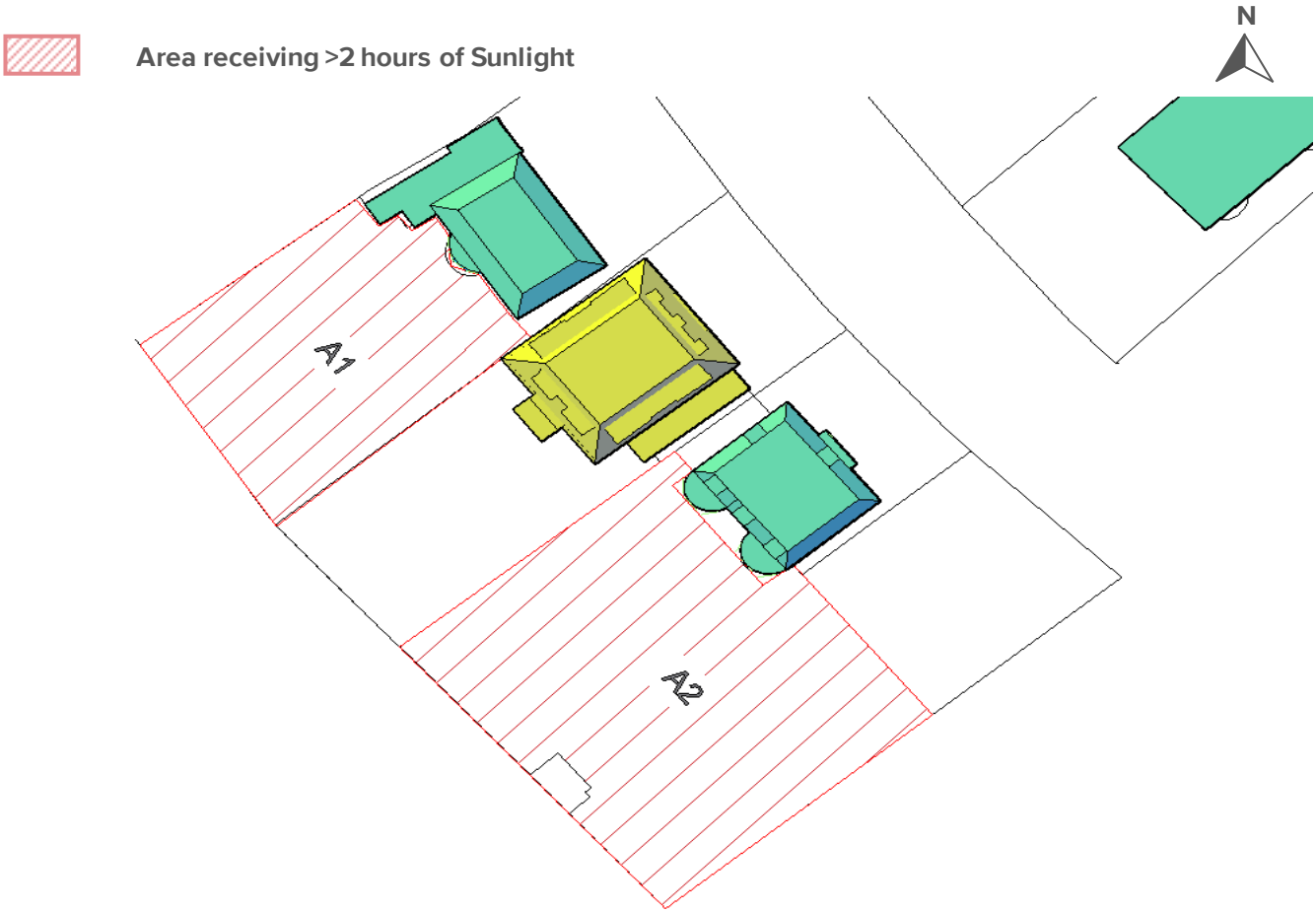


Figure 12: Amenity and open spaces in close proximity to development site

Table 9: Overshadowing results for the existing and proposed properties at 77 Avenue Road

Amenity Reference	Amenity Area (m^2)	Lit Area Existing (m^2)	Lit Area Proposed (m^2)	Pr/Ex
A1	797.8	797.7	797.7	1.0
A2	1439.6	1439.5	1439.5	1.0

CONCLUSION

The daylight, sunlight and overshadowing analysis indicates that there will not be a significant impact on surrounding properties arising from the proposed development at 77 Avenue Road.

DAYLIGHT ASSESSMENT

A total of 67 windows from buildings surrounding the site were highlighted as being in close proximity to, and facing the proposed development.

Daylighting levels for potentially affected windows of surrounding developments by the proposed development were found to be acceptable.

In summary,

- 14 out of 67 windows passed the 25° line test;
- 43 of the remaining 53 windows achieved VSCs greater than 27%;
- 4 windows achieved relative VSCs over 0.8 of their former values
- 4 windows attained relative VSCs of over 0.8 of the mirror image values

Of the remaining 2 windows, 1 window is thought to serve a non-habitable space expected to be a hallway space – identified though visual and desktop research. The other window has been recognised as connected to a multi-aspect living room which is served by 3 west facing windows that are expected to achieve good levels of daylight.

Therefore, the development is not anticipated to have any notable impact on the daylight received by neighbouring properties.

SUNLIGHT ASSESSMENT

A total of 38 windows from buildings surrounding the site were assessed for sunlight access. The analysis indicated that 6 of the 38 windows passed the 25° line test. 31 of the remaining 32 windows satisfied the BRE criteria for annual probable sunlight hours (APSH) and winter probable sunlight hours (WPSH). The remaining 1 window resulted in less than a 4% reduction in annual sunlight.

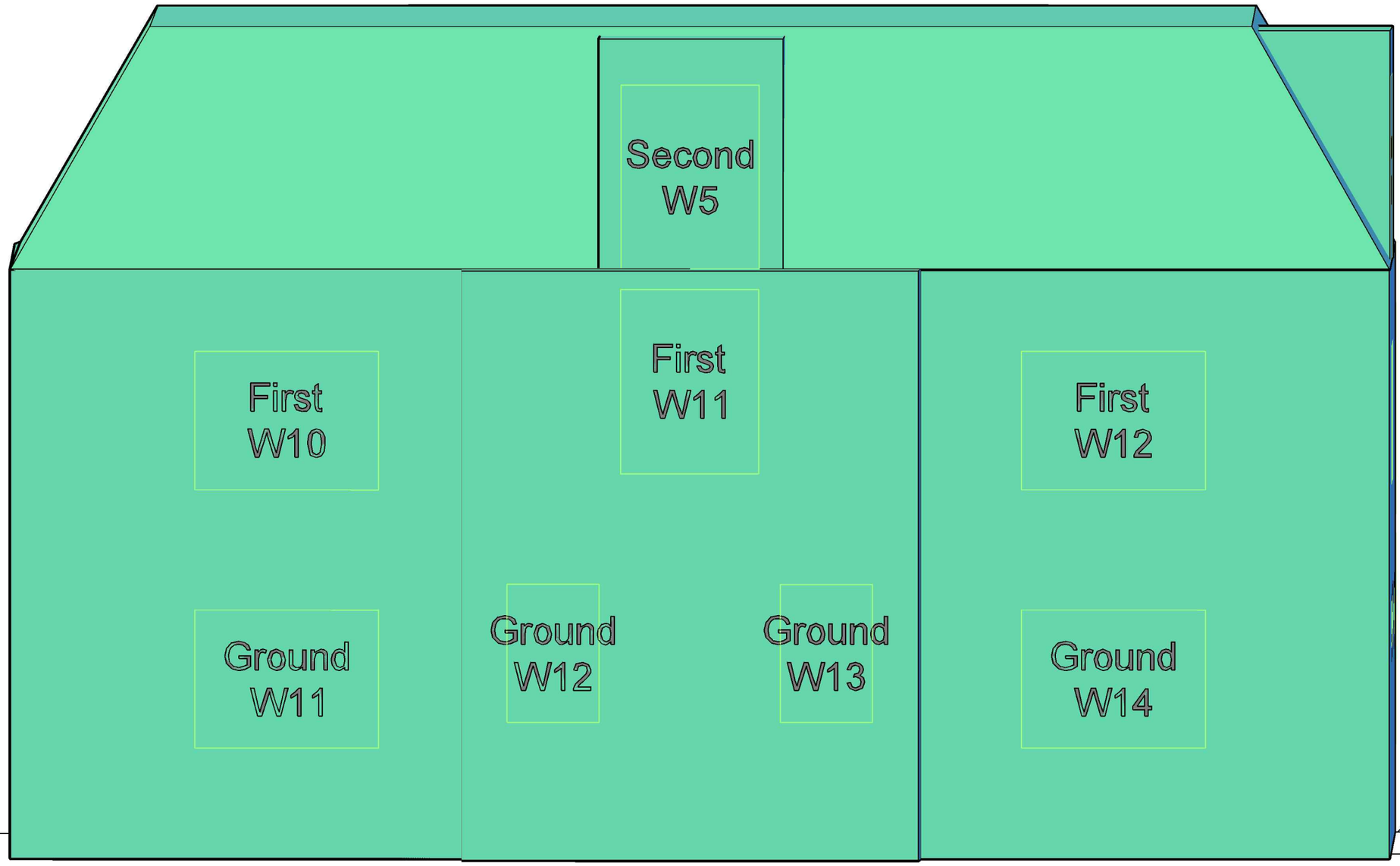
Therefore, the proposed development at 77 Avenue Road is not considered to have any notable impact on sunlight access to windows of surrounding developments.

OVERSHADOWING ASSESSMENT

A solar access analysis was undertaken for a total of 2 amenity spaces for the full 24 hours on 21st of March. All the amenity spaces are predicted to have a minimum of 2 hours of sunlight on 21 March over at least 50% of each assessed amenity space.

The proposed development is therefore not considered to have any significant impact on sunlight access to the amenity spaces surrounding the site.

APPENDIX A - WINDOW REFERENCE



Notes

Rev	Date	Description	Chk'd	Appr
XX	00.00.16	XX	XX	XX

ISSUE TYPE

XCO2

The Gymnasium,
56 Kingsway Place,
Sans Walk, London
EC1R 0LU
+44 (0) 20 7700 1000
mail@xco2.com
www.xco2.com

Client

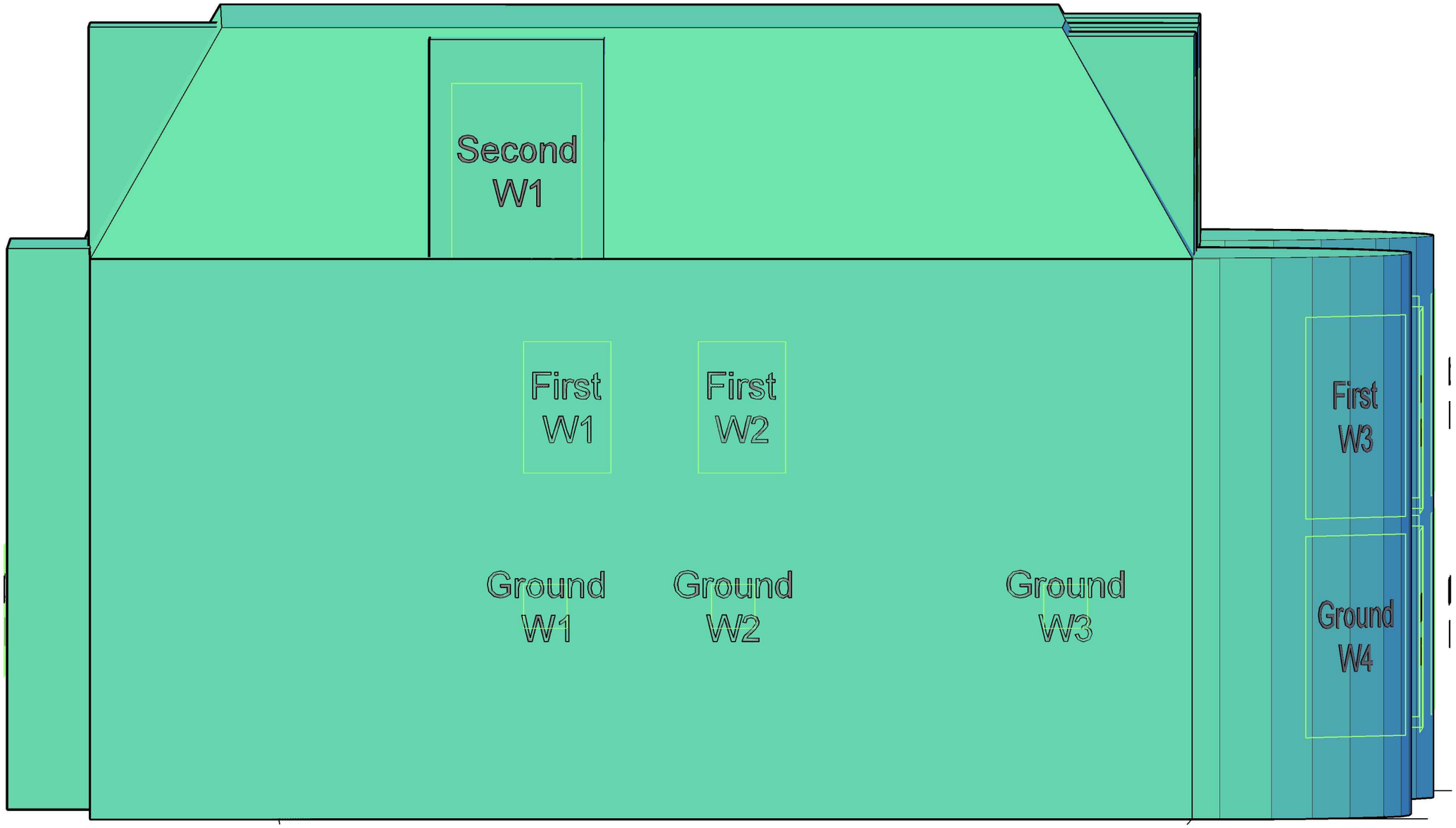
Architect
Coupdeville Architect

Project
77 Avenue Road

Title
75 Avenue Road Windows
Front (east)

Scale@A3	Drawn	Checked	Date
N.T.S	HP		21.03.18

Drawing Number	Revision
9.110_1	1



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XX	00.00.16	XX	XX	XX

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The Gymnasium,
56 Kingsway Place,
Sans Walk, London
EC1R 0LU
+44 (0) 20 7700 1000
mail@xco2.com
www.xco2.com

Client

Architect
Coupdeville Architect

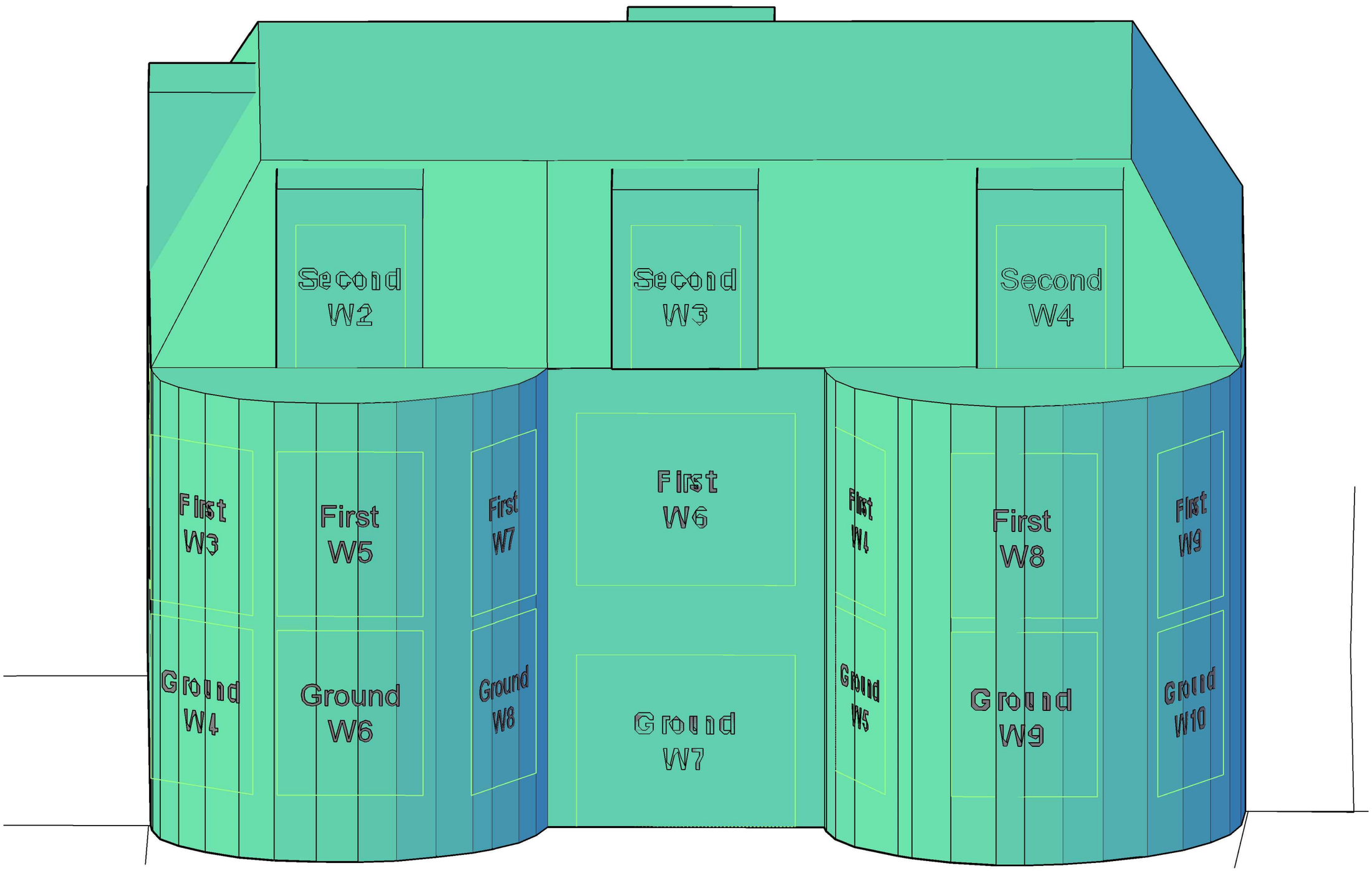
Project
77 Avenue Road

Title
75 Avenue Road Windows
Side (north)

Scale@A3	Drawn	Checked	Date
N.T.S	HP		21.03.18

Drawing Number
9.110_2

Revision
1



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Rev	Date	Description	Chk'd	Appr
XX	00.00.16	XX	XX	XX

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XCO2
The Gymnasium,
56 Kingsway Place,
Sans Walk, London
EC1R 0LU
+44 (0) 20 7700 1000
mail@xco2.com
www.xco2.com

Client

Architect
Coupdeville Architect

Project
77 Avenue Road

Title
75 Avenue Road Windows
Rear (west)

Scale@A3	Drawn	Checked	Date
N.T.S	HP		21.03.18

Drawing Number
9.110_3

Revision
1

Notes

Rev	Date	Description	Chk'd	Appr
XX	00.00.16	XX	XX	XX

ISSUE TYPE

XCO2
The Gymnasium,
56 Kingsway Place,
Sans Walk, London
EC1R 0LU
+44 (0) 20 7700 1000
mail@xco2.com
www.xco2.com

Client

Architect
Coupdeville Architect

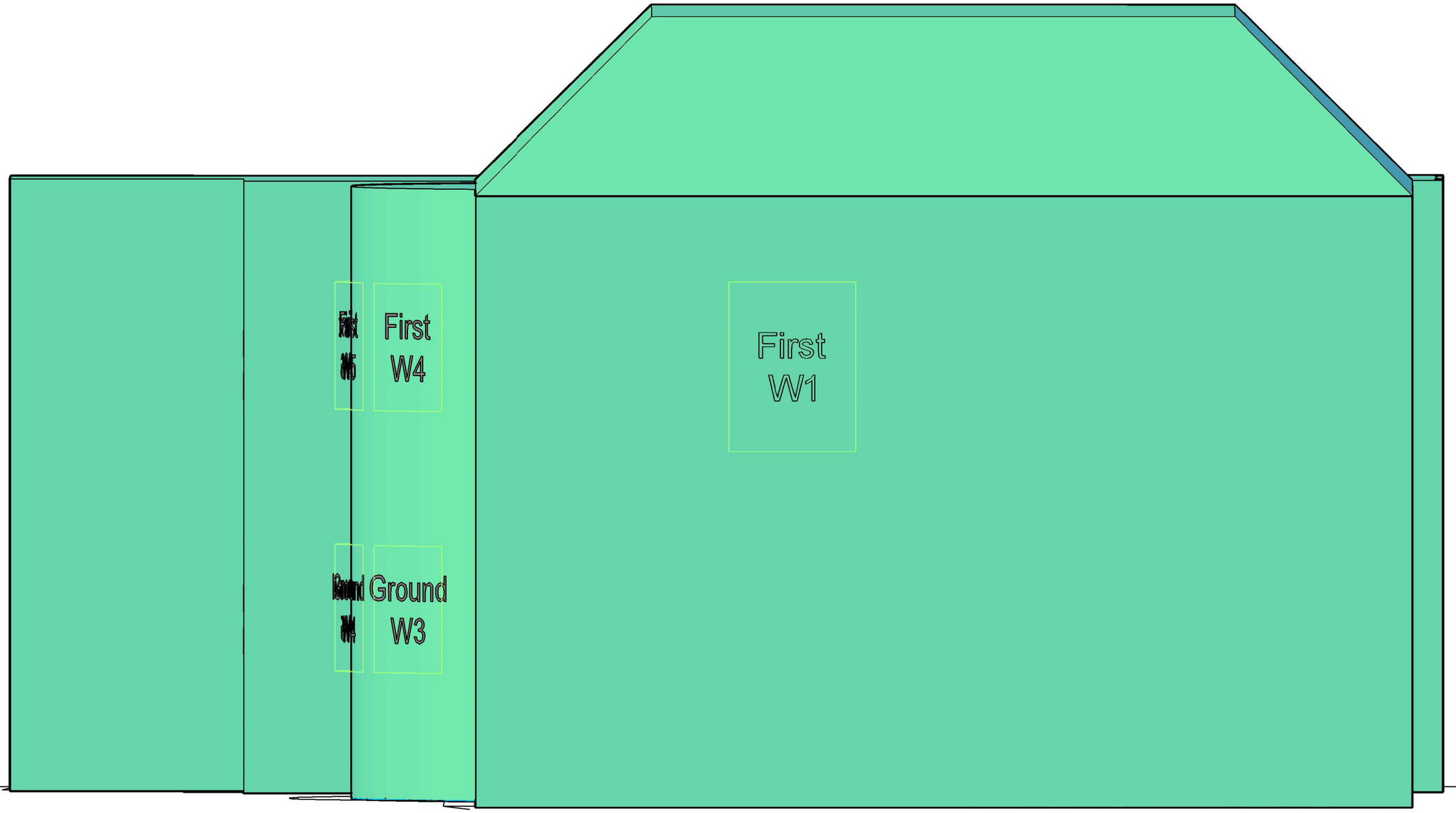
Project
77 Avenue Road

Title
79 Avenue Road Windows
Front (east)

Scale@A3	Drawn	Checked	Date
N.T.S	HP		21.03.18

Drawing Number
9.110_4

Revision
1



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XX	00.00.16	XX	XX	XX

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XCO2
The Gymnasium,
56 Kingsway Place,
Sans Walk, London
EC1R 0LU
+44 (0) 20 7700 1000
mail@xco2.com
www.xco2.com

Client

Architect
Coupdeville Architect

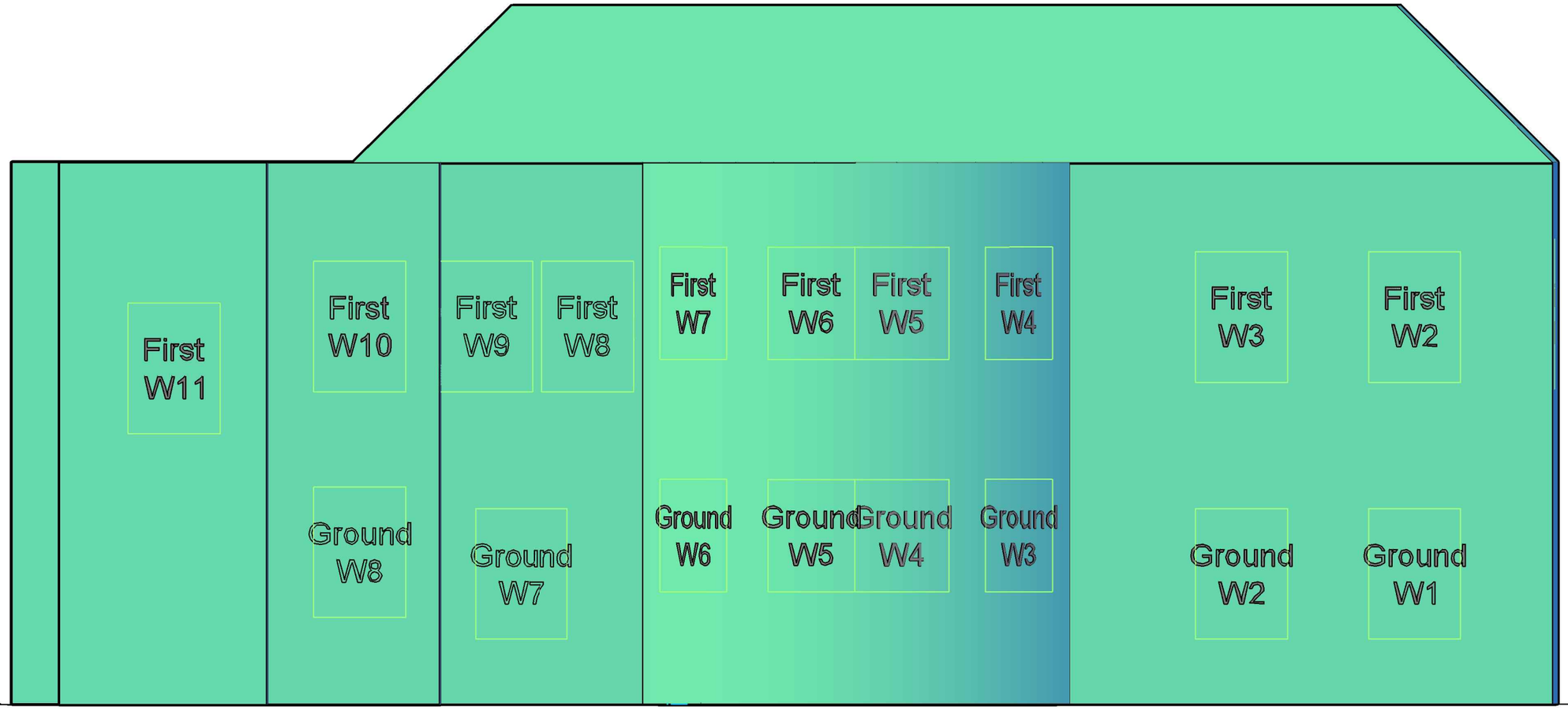
Project
77 Avenue Road

Title
79 Avenue Road Windows
Side (south

Scale@A3	Drawn	Checked	Date
N.T.S	HP		21.03.18

Drawing Number
9.110_5

Revision
1



Notes

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XX	00.00.16	XX	XX	XX

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The Gymnasium,
56 Kingsway Place,
Sans Walk, London
EC1R 0LU
+44 (0) 20 7700 1000
mail@xco2.com
www.xco2.com

Client

Architect
Coupdeville Architect

Project
77 Avenue Road

Title
79 Avenue Road Windows
Rear (west)

Scale@A3	Drawn	Checked	Date
N.T.S	HP		21.03.18

Drawing Number	Revision
9.110_6	1

APPENDIX B - DETAILED DAYLIGHT RESULTS

Building	Floor	Window no.	25-degree plane test	VSC tests			Mirror Image Results	Comments
				Proposed VSC 27%?	Existing VSC (%)	Relative VSC >0.8?		
58	Ground	W1	Pass	-	-	-	-	Meets BRE Criteria
56	Ground	W1	Pass	-	-	-	-	Meets BRE Criteria
56	Ground	W2	Pass	-	-	-	-	Meets BRE Criteria
56	Ground	W3	Pass	-	-	-	-	Meets BRE Criteria
56	Ground	W4	Pass	-	-	-	-	Meets BRE Criteria
79	Ground	W1	Further testing required	>27.0%	-	-	-	Meets BRE Criteria
79	Ground	W2	Further testing required	>27.0%	-	-	-	Meets BRE Criteria
79	Ground	W3	Further testing required	>27.0%	-	-	-	Meets BRE Criteria
79	Ground	W4	Further testing required	>27.0%	-	-	-	Meets BRE Criteria
79	Ground	W5	Further testing required	>27.0%	-	-	-	Meets BRE Criteria
79	Ground	W6	Further testing required	25.9%	25.9%	1	-	Meets BRE Criteria

Building	Floor	Window no.	25-degree plane test	VSC tests			Mirror Image Results	Comments
				Proposed VSC 27%?	Existing VSC (%)	Relative VSC >0.8?		
79	Ground	W7	Further testing required	26.1%	26.1%	1	-	Meets BRE Criteria
79	Ground	W8	Further testing required	>27.0%	-	-	-	Meets BRE Criteria
79	Ground	W9	Further testing required	>27.0%	-	-	-	Meets BRE Criteria
79	Ground	W10	Further testing required	>27.0%	-	-	-	Meets BRE Criteria
79	Ground	W11	Further testing required	>27.0%	-	-	-	Meets BRE Criteria
79	Ground	W12	Further testing required	>27.0%	-	-	-	Meets BRE Criteria
79	First	W1	Further testing required	7.9%	29.0%	0.27	0.3	Window expected to serve non-habitable room
79	First	W2	Further testing required	>27.0%	-	-	-	Meets BRE Criteria
79	First	W3	Further testing required	>27.0%	-	-	-	Meets BRE Criteria
79	First	W4	Further testing required	>27.0%	-	-	-	Meets BRE Criteria
79	First	W5	Further testing required	>27.0%	-	-	-	Meets BRE Criteria
79	First	W6	Further testing required	>27.0%	-	-	-	Meets BRE Criteria

Building	Floor	Window no.	25-degree plane test	VSC tests			Mirror Image Results	Comments
				Proposed VSC 27%?	Existing VSC (%)	Relative VSC >0.8?		
79	First	W7	Further testing required	>27.0%	-	-	-	Meets BRE Criteria
79	First	W8	Further testing required	>27.0%	-	-	-	Meets BRE Criteria
79	First	W9	Further testing required	24.9%	24.9%	1	-	Meets BRE Criteria
79	First	W10	Further testing required	>27.0%	-	-	-	Meets BRE Criteria
79	First	W11	Further testing required	>27.0%	-	-	-	Meets BRE Criteria
79	First	W12	Further testing required	>27.0%	-	-	-	Meets BRE Criteria
79	First	W13	Further testing required	>27.0%	-	-	-	Meets BRE Criteria
79	First	W14	Further testing required	>27.0%	-	-	-	Meets BRE Criteria
79	First	W15	Further testing required	>27.0%	-	-	-	Meets BRE Criteria
79	First	W16	Further testing required	>27.0%	-	-	-	Meets BRE Criteria
79	First	W17	Further testing required	>27.0%	-	-	-	Meets BRE Criteria
79	First	W18	Further testing required	>27.0%	-	-	-	Meets BRE Criteria

Building	Floor	Window no.	25-degree plane test	VSC tests			Mirror Image Results	Comments
				Proposed VSC 27%?	Existing VSC (%)	Relative VSC >0.8?		
75	Ground	W1	Further testing required	19.3%	28.9%	0.67	0.95	Meets mirror image criteria
75	Ground	W2	Further testing required	17.4%	27.7%	0.63	0.86	Meets mirror image criteria
75	Ground	W3	Further testing required	17.3%	27.7%	0.63	0.73	Window serves multi-aspect living space
75	Ground	W4	Further testing required	>27.0%	-	-	-	Meets BRE Criteria
75	Ground	W5	Further testing required	27.0%	28.2%	0.96	-	Meets BRE Criteria
75	Ground	W6	Further testing required	>27.0%	-	-	-	Meets BRE Criteria
75	Ground	W7	Further testing required	>27.0%	-	-	-	Meets BRE Criteria
75	Ground	W8	Further testing required	>27.0%	-	-	-	Meets BRE Criteria
75	Ground	W9	Further testing required	>27.0%	-	-	-	Meets BRE Criteria
75	Ground	W10	Further testing required	>27.0%	-	-	-	Meets BRE Criteria
75	Ground	W11	Pass	-	-	-	-	Meets BRE Criteria
75	Ground	W12	Pass	-	-	-	-	Meets BRE Criteria

Building	Floor	Window no.	25-degree plane test	VSC tests			Mirror Image Results	Comments
				Proposed VSC 27%?	Existing VSC (%)	Relative VSC >0.8?		
75	Ground	W13	Pass	-	-	-	-	Meets BRE Criteria
75	Ground	W14	Pass	-	-	-	-	Meets BRE Criteria
75	First	W1	Further testing required	24.1%	33.1%	0.73	0.92	Meets mirror image criteria
75	First	W2	Further testing required	22.5%	32.6%	0.69	0.85	Meets mirror image criteria
75	First	W3	Further testing required	>27.0%	-	-	-	Meets BRE Criteria
75	First	W4	Further testing required	>27.0%	-	-	-	Meets BRE Criteria
75	First	W5	Further testing required	>27.0%	-	-	-	Meets BRE Criteria
75	First	W6	Further testing required	>27.0%	-	-	-	Meets BRE Criteria
75	First	W7	Further testing required	>27.0%	-	-	-	Meets BRE Criteria
75	First	W8	Further testing required	>27.0%	-	-	-	Meets BRE Criteria
75	First	W9	Further testing required	>27.0%	-	-	-	Meets BRE Criteria
75	First	W10	Pass	-	-	-	-	Meets BRE Criteria

Building	Floor	Window no.	25-degree plane test	VSC tests			Mirror Image Results	Comments
				Proposed VSC 27%?	Existing VSC (%)	Relative VSC >0.8?		
75	First	W11	Pass	-	-	-	-	Meets BRE Criteria
75	First	W12	Pass	-	-	-	-	Meets BRE Criteria
75	Second	W1	Further testing required	>27.0%	-	-	-	Meets BRE Criteria
75	Second	W2	Further testing required	>27.0%	-	-	-	Meets BRE Criteria
75	Second	W3	Further testing required	>27.0%	-	-	-	Meets BRE Criteria
75	Second	W4	Further testing required	>27.0%	-	-	-	Meets BRE Criteria
75	Second	W5	Pass	-	-	-	-	Meets BRE Criteria
60	Ground	W1	Pass	-	-	-	-	Meets BRE Criteria

APPENDIX C - DETAILED SUNLIGHT RESULTS

Building	Floor	Window no.	Orientation	25-degree plane test	APSH test			WPSH test			Total reduction<4%?	Comments
					Proposed APSH >25%?	Existing APSH (%)	Relative APSH >0.8?	Proposed WPSH >5%?	Existing WPSH (%)	Relative WPSH >0.8?		
58	Ground	W1	South	Pass	-	-	-	-	-	-	-	Meets BRE Criteria
56	Ground	W1	South	Pass	-	-	-	-	-	-	-	Meets BRE Criteria
56	Ground	W2	South	Pass	-	-	-	-	-	-	-	Meets BRE Criteria
56	Ground	W3	South	Pass	-	-	-	-	-	-	-	Meets BRE Criteria
56	Ground	W4	South	Pass	-	-	-	-	-	-	-	Meets BRE Criteria
79	Ground	W1	South	Further testing required	>25%	-	-	>5%	-	-	-	Meets BRE Criteria
79	Ground	W2	South	Further testing required	>25%	-	-	>5%	-	-	-	Meets BRE Criteria
79	Ground	W3	South	Further testing required	>25%	-	-	>5%	-	-	-	Meets BRE Criteria

DAYLIGHT, SUNLIGHT & OVERSHADOWING

Building	Floor	Window no.	Orientation	25-degree plane test	APSH test			WPSH test			Total reduction<4%?	Comments
					Proposed APSH >25%?	Existing APSH (%)	Relative APSH >0.8?	Proposed WPSH >5%?	Existing WPSH (%)	Relative WPSH >0.8?		
79	Ground	W4	South	Further testing required	>25%	-	-	>5%	-	-	-	Meets BRE Criteria
79	Ground	W5	South	Further testing required	>25%	-	-	>5%	-	-	-	Meets BRE Criteria
79	Ground	W6	North	n/a	-	-	-	-	-	-	-	Meets BRE Criteria
79	Ground	W7	South	Further testing required	>25%	-	-	>5%	-	-	-	Meets BRE Criteria
79	Ground	W8	South	Further testing required	>25%	-	-	>5%	-	-	-	Meets BRE Criteria
79	Ground	W9	North	n/a	-	-	-	-	-	-	-	Meets BRE Criteria
79	Ground	W10	North	n/a	-	-	-	-	-	-	-	Meets BRE Criteria
79	Ground	W11	North	n/a	-	-	-	-	-	-	-	Meets BRE Criteria
79	Ground	W12	North	n/a	-	-	-	-	-	-	-	Meets BRE Criteria
79	First	W1	South	Further testing required	23.0%	71.0%	0.32	>5%	-	-	48.0%	Meets BRE Criteria

DAYLIGHT, SUNLIGHT & OVERSHADOWING

Building	Floor	Window no.	Orientation	25-degree plane test	APSH test			WPSH test			Total reduction<4%?	Comments
					Proposed APSH >25%?	Existing APSH (%)	Relative APSH >0.8?	Proposed WPSH >5%?	Existing WPSH (%)	Relative WPSH >0.8?		
79	First	W2	South	Further testing required	>25%	-	-	>5%	-	-	-	Meets BRE Criteria
79	First	W3	South	Further testing required	>25%	-	-	>5%	-	-	-	Meets BRE Criteria
79	First	W4	South	Further testing required	>25%	-	-	>5%	-	-	-	Meets BRE Criteria
79	First	W5	South	Further testing required	>25%	-	-	>5%	-	-	-	Meets BRE Criteria
79	First	W6	South	Further testing required	>25%	-	-	>5%	-	-	-	Meets BRE Criteria
79	First	W7	North	n/a	-	-	-	-	-	-	-	Meets BRE Criteria
79	First	W8	South	Further testing required	>25%	-	-	>5%	-	-	-	Meets BRE Criteria
79	First	W9	South	Further testing required	>25%	-	-	>5%	-	-	-	Meets BRE Criteria
79	First	W10	South	Further testing required	>25%	-	-	>5%	-	-	-	Meets BRE Criteria

DAYLIGHT, SUNLIGHT & OVERSHADOWING

Building	Floor	Window no.	Orientation	25-degree plane test	APSH test			WPSH test			Total reduction<4%?	Comments
					Proposed APSH >25%?	Existing APSH (%)	Relative APSH >0.8?	Proposed WPSH >5%?	Existing WPSH (%)	Relative WPSH >0.8?		
79	First	W11	South	Further testing required	>25%	-	-	>5%	-	-	-	Meets BRE Criteria
79	First	W12	North	n/a	-	-	-	-	-	-	-	Meets BRE Criteria
79	First	W13	North	n/a	-	-	-	-	-	-	-	Meets BRE Criteria
79	First	W14	North	n/a	-	-	-	-	-	-	-	Meets BRE Criteria
79	First	W15	North	n/a	-	-	-	-	-	-	-	Meets BRE Criteria
79	First	W16	North	n/a	-	-	-	-	-	-	-	Meets BRE Criteria
79	First	W17	North	n/a	-	-	-	-	-	-	-	Meets BRE Criteria
79	First	W18	North	n/a	-	-	-	-	-	-	-	Meets BRE Criteria
75	Ground	W1	North	n/a	-	-	-	-	-	-	-	Meets BRE Criteria
75	Ground	W2	North	n/a	-	-	-	-	-	-	-	Meets BRE Criteria
75	Ground	W3	North	n/a	-	-	-	-	-	-	-	Meets BRE Criteria

DAYLIGHT, SUNLIGHT & OVERSHADOWING

Building	Floor	Window no.	Orientation	25-degree plane test	APSH test			WPSH test			Total reduction<4%?	Comments
					Proposed APSH >25%?	Existing APSH (%)	Relative APSH >0.8?	Proposed WPSH >5%?	Existing WPSH (%)	Relative WPSH >0.8?		
75	Ground	W4	South	Further testing required	>25%	-	-	>5%	-	-	-	Meets BRE Criteria
75	Ground	W5	North	n/a	-	-	-	-	-	-	-	Meets BRE Criteria
75	Ground	W6	South	Further testing required	>25%	-	-	>5%	-	-	-	Meets BRE Criteria
75	Ground	W7	South	Further testing required	>25%	-	-	>5%	-	-	-	Meets BRE Criteria
75	Ground	W8	South	Further testing required	>25%	-	-	>5%	-	-	-	Meets BRE Criteria
75	Ground	W9	South	Further testing required	>25%	-	-	>5%	-	-	-	Meets BRE Criteria
75	Ground	W10	South	Further testing required	>25%	-	-	>5%	-	-	-	Meets BRE Criteria
75	Ground	W11	North	n/a	-	-	-	-	-	-	-	Meets BRE Criteria
75	Ground	W12	North	n/a	-	-	-	-	-	-	-	Meets BRE Criteria

DAYLIGHT, SUNLIGHT & OVERSHADOWING

Building	Floor	Window no.	Orientation	25-degree plane test	APSH test			WPSH test			Total reduction<4%?	Comments
					Proposed APSH >25%?	Existing APSH (%)	Relative APSH >0.8?	Proposed WPSH >5%?	Existing WPSH (%)	Relative WPSH >0.8?		
75	Ground	W13	North	n/a	-	-	-	-	-	-	-	Meets BRE Criteria
75	Ground	W14	North	n/a	-	-	-	-	-	-	-	Meets BRE Criteria
75	First	W1	North	n/a	-	-	-	-	-	-	-	Meets BRE Criteria
75	First	W2	North	n/a	-	-	-	-	-	-	-	Meets BRE Criteria
75	First	W3	South	Further testing required	>25%	-	-	>5%	-	-	-	Meets BRE Criteria
75	First	W4	North	n/a	-	-	-	-	-	-	-	Meets BRE Criteria
75	First	W5	South	Further testing required	>25%	-	-	>5%	-	-	-	Meets BRE Criteria
75	First	W6	South	Further testing required	>25%	-	-	>5%	-	-	-	Meets BRE Criteria
75	First	W7	South	Further testing required	>25%	-	-	>5%	-	-	-	Meets BRE Criteria
75	First	W8	South	Further testing required	>25%	-	-	>5%	-	-	-	Meets BRE Criteria

DAYLIGHT, SUNLIGHT & OVERSHADOWING

Building	Floor	Window no.	Orientation	25-degree plane test	APSH test			WPSH test			Total reduction<4%?	Comments
					Proposed APSH >25%?	Existing APSH (%)	Relative APSH >0.8?	Proposed WPSH >5%?	Existing WPSH (%)	Relative WPSH >0.8?		
75	First	W9	South	Further testing required	>25%	-	-	>5%	-	-	-	Meets BRE Criteria
75	First	W10	North	n/a	-	-	-	-	-	-	-	Meets BRE Criteria
75	First	W11	North	n/a	-	-	-	-	-	-	-	Meets BRE Criteria
75	First	W12	North	n/a	-	-	-	-	-	-	-	Meets BRE Criteria
75	Second	W1	North	n/a	-	-	-	-	-	-	-	Meets BRE Criteria
75	Second	W2	South	Further testing required	>25%	-	-	>5%	-	-	-	Meets BRE Criteria
75	Second	W3	South	Further testing required	>25%	-	-	>5%	-	-	-	Meets BRE Criteria
75	Second	W4	South	Further testing required	>25%	-	-	>5%	-	-	-	Meets BRE Criteria
75	Second	W5	North	n/a	-	-	-	-	-	-	-	Meets BRE Criteria
60	Ground	W1	South	Pass	-	-	-	-	-	-	-	Meets BRE Criteria

XCO2
56 Kingsway Place, Sans Walk
London EC1R 0LU

+44 (0)20 7700 1000
mail@xco2.com
xco2.com