30-46 AUBURN ROAD, REGENTS PARK

Natural Ventilation Assessment

Prepared for:

30 Auburn Road Pty Ltd
30-46 Auburn Road
Regents Park NSW 4118

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BASIS OF REPORT

This report has been prepared by SLR Consulting Australia Pty Ltd (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with 30 Auburn Road Pty Ltd (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of the Client. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.

DOCUMENT CONTROL

Reference	Date	Prepared	Checked	Authorised
610.30099-R01-v1.3	16 September 2020	Peter Hayman	Dr Neihad Al-Khalidy	Dr Neihad Al-Khalidy
610.30099-R01-v1.2	14 September 2020	Peter Hayman	Dr Neihad Al-Khalidy	Dr Neihad Al-Khalidy
610.30099-R01-v1.1	10 September 2020	Peter Hayman	Dr Neihad Al-Khalidy	Dr Neihad Al-Khalidy
610.30099-R01-v1.0	8 September 2020	Peter Hayman	Dr Neihad Al-Khalidy	Dr Neihad Al-Khalidy

EXECUTIVE SUMMARY

SLR Consulting Australia Pty Ltd (SLR) has been engaged by 30 Auburn Road Pty Ltd to provide a natural ventilation analysis of the proposed 30-46 Auburn Road, Regents Park development. The assessment forms part of a rezoning review request to the Department of Planning Industry & Environment.

The State Environmental Planning Policy (SEPP) 65 supported by the Australian Design Guide is relevant to the assessment of the natural ventilation through residential components of proposed development. Section 4B-3 of the Australian Design Guide states that:

At least 60% of apartments are naturally cross ventilated in the first nine storeys of the building. Apartments at ten storeys or greater are deemed to be cross ventilated only if any enclosure of the balconies at these levels allows adequate natural ventilation and cannot be fully enclosed.

The proposed development implements a number of the ADG recommendations to maximize the natural cross ventilation throughout the development.

- The proposed development has been provided with openings on multiple sides of the apartments for the majority of proposed floor plans, allowing it to make use of wind-induced natural ventilation throughout the year and thereby minimising energy costs.
- The overall depth of cross-over or cross-through units does not exceed 18 m as per the Design Criteria of Objective 4B-3.

SLR has identified further apartments that could potentially achieve natural cross ventilation through utilising building slots and recesses with windows attached. These were analysed using Computational Fluid Dynamics (CFD) numerical modelling. The following summary also includes design changes made after the initial assessment received by SLR on September 10th 2020.

The following conclusions have been reached based on a qualitative review of the floorplans of the ADG complaint dual aspect units and quantitative numerical modelling of non-dual aspect units:

- 64.1% (100 out of 156) of the apartments in Building A-B will be naturally cross ventilated, thereby meeting the ADG requirements.
- 65.3% (66 out of 101) of the apartments in Building C-D will be naturally cross ventilated, thereby meeting the ADG requirements.
- 67.5% (85 out of 126) of the apartments in Building E-F will be naturally cross ventilated, thereby meeting the ADG requirements.
- 78.3% (47 out of 60) of the apartments in Building G will be naturally cross ventilated, thereby meeting the ADG requirements.
- 82.2% (37 out of 45) of the apartments in Building H will be naturally cross ventilated, thereby meeting the ADG requirements.
- 74.7% (59 out of 79) of the apartments in Building I will be naturally cross ventilated, thereby meeting the ADG requirements.

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2 Introduction

SLR Consulting Australia Pty Ltd (SLR) has been engaged by 30 Auburn Road Pty Ltd to provide a natural ventilation analysis of the proposed 30-46 Auburn Road, Regents Park development. The proposed Development is located in Regents Park, bounded by Auburn Road to the east, along with the rail corridor servicing the Inner West and Bankstown Lines to the south and west. North of the site is currently bound by low-level industrial development.

The assessment forms part of a rezoning review request to the Department of Planning Industry & Environment.

This will be done through the combination of a qualitative review of the floor plans and 3D models provided and a quantitative Computational Fluid Dynamics (CFD) assessment of selected apartments.

2.1 Development Site Location

The proposed Development is located in Regents Park, bounded by Auburn Road to the east, along with the rail corridor servicing the Inner West and Bankstown Lines to the south and west. North of the site is currently bound by low-level industrial development - refer **Figure 1**.

Figure 1 Development Site Location

Image: Nearmap, 3 August 2020

2.2 Proposed Development Description

From the plans provided the development comprises the following:

- Basement car parking;
- Ground Level with commercial tenancies, childcare, communal open spaces, single storey residential apartments and two storey residential apartments;
- Building G and H with residential apartments up to Level 5;
- Building I with residential apartments up to Level 6;
- Building C-D and E-F with residential apartments up to Level 7; and
- Building A-B with residential apartments up to Level 11.

3 Australian Design Guide Requirements

The State Environmental Planning Policy (SEPP) 65 supported by the Australian Design Guide is relevant to the assessment of the natural ventilation through residential components of proposed development. Section 4B-3 of the Australian Design Guide states that:

At least 60% of apartments are naturally cross ventilated in the first nine storeys of the building. Apartments at ten storeys or greater are deemed to be cross ventilated only if any enclosure of the balconies at these levels allows adequate natural ventilation and cannot be fully enclosed.

The following points from the design guide are also noted.

- Overall depth of a cross-over or cross-through apartment does not exceed 18m, measured glass line to glass line.
- Natural ventilation to single aspect apartments is achieved with a light well or stack effect ventilation (or similar) or courtyards or building indentations have a width to depth ratio of 2:1 or 3:1 to ensure effective air circulation and avoid trapped smells.

There are no specific requirements (eg air changes per hour) in the ADG guideline. However AS1668.2-2002 "The use of ventilation and air conditioning in buildings Part 2" states:

- Ventilation design for indoor air contaminant control (excluding requirements for the health aspects of tobacco smoke exposure)" recommends 3 air changes per hour for habitable rooms to satisfy the air quality requirements.

4 Natural Ventilation

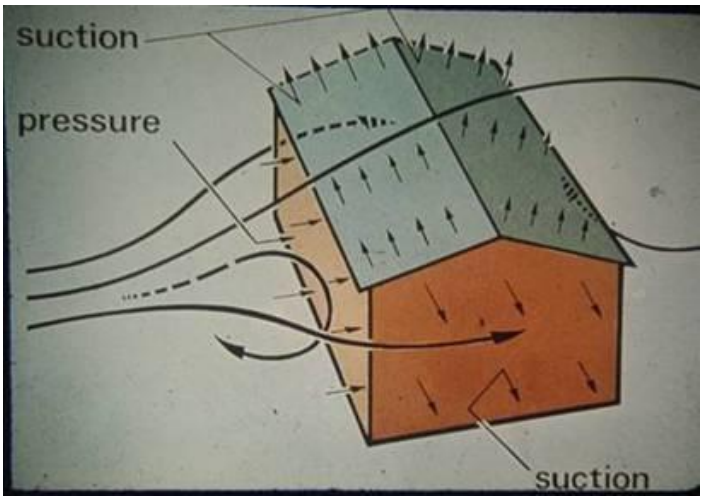
4.1 General Principles

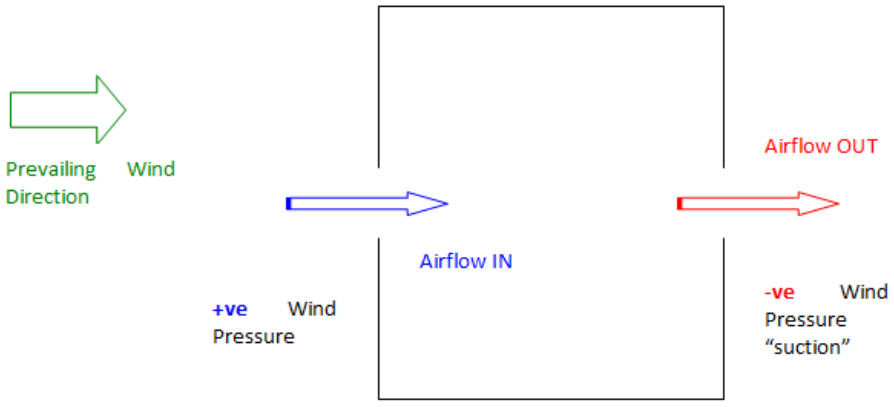
A key feature of the proposed development is the incorporation of façade openings designed to enable various spaces within the development buildings to make use of wind–induced natural ventilation throughout the year thereby minimising energy costs.

Wind-induced natural ventilation works on the straightforward principle of differential pressure. If a building envelope has multiple openings and there exists a pressure difference between those openings, e.g. the wind pressure at one opening is greater than the pressure at the other opening; airflow will be pushed through the building in the direction positive to negative.

The resulting amount of airflow through the building envelope will be a function of the magnitude of the pressure differential, the size of the various building openings and degree of "blockage" in between. These features are illustrated in **Figure 2.**

Figure 2 Wind-Induced Natural Ventilation via Differential Pressure





5 Qualitative Assessment

The natural ventilation for the proposed residential development has initially been qualitatively assessed. Ventilation is achieved by the differential pressure between the different building facades.

For the qualitative assessment SLR used plans received on the 13th August 2020, prepared by Studio MRA.

5.1 Qualitative Results

Table 1 Cross Ventilated Apartments – Building A-B

Level	Number of Apartments	Number of Apartments with Openings to Support Cross Ventilation (as per ADG)	Percentage
Ground	20	4	20.0%
1	11	3	27.3%
2	19	7	36.8%
3	19	9	47.4%
4	19	9	47.4%
5	19	9	47.4%
6	19	9	47.4%
7	19	9	47.4%
8	11	6	54.5%
Total	156	65	41.6%

A.809 could achieve cross ventilation but there are no openings on the eastern side of the apartment.

Table 2 Cross Ventilated Apartments – Building C-D

Level	Number of Apartments	Number of Apartments with Openings to Support Cross Ventilation (as per ADG)	Percentage
Ground	19	4	21.1%
1	7	2	28.6%
2	12	4	33.3%
3	12	4	33.3%
4	12	4	33.3%
5	13	6	46.2%
6	13	6	46.2%
7	13	9	69.2%
Total	101	39	38.6%

Table 3 Cross Ventilated Apartments – Building E-F

Level	Number of Apartments	Number of Apartments with Openings to Support Cross Ventilation (as per ADG)	Percentage
Ground	22	5	22.7%
1	8	3	37.5%
2	16	7	43.8%
3	16	7	43.8%
4	16	7	43.8%
5	16	7	43.8%
6	16	7	43.8%
7	16	9	56.3%
Total	126	59	46.8%

Table 4 Cross Ventilated Apartments – Building G

Level	Number of Apartments	Number of Apartments with Openings to Support Cross Ventilation (as per ADG)	Percentage
Ground	11	2	18.2%
1	5	2	40.0%
2	11	4	36.4%
3	11	4	36.4%
4	11	4	36.4%
5	11	11	100%
Total	60	27	45.0%

Table 5 Cross Ventilated Apartments – Building H

Level	Number of Apartments	Number of Apartments with Openings to Support Cross Ventilation (as per ADG)	Percentage
Ground	9	2	22.2%
1	4	1	25.0%
2	8	4	50.0%
3	8	4	50.0%
4	8	4	50.0%
5	8	8	100.0
Total	45	23	51.1%

Table 6 Cross Ventilated Apartments – Building I

Level	Number of Apartments	Number of Apartments with Openings to Support Cross Ventilation (as per ADG)	Percentage
Ground	12	3	25.0%
1	11	2	18.2%
2	10	3	30.0%
3	13	4	30.8%
4	13	4	30.8%
5	13	7	30.8%
6	7	4	57.1%
Total	79	27	34.2%

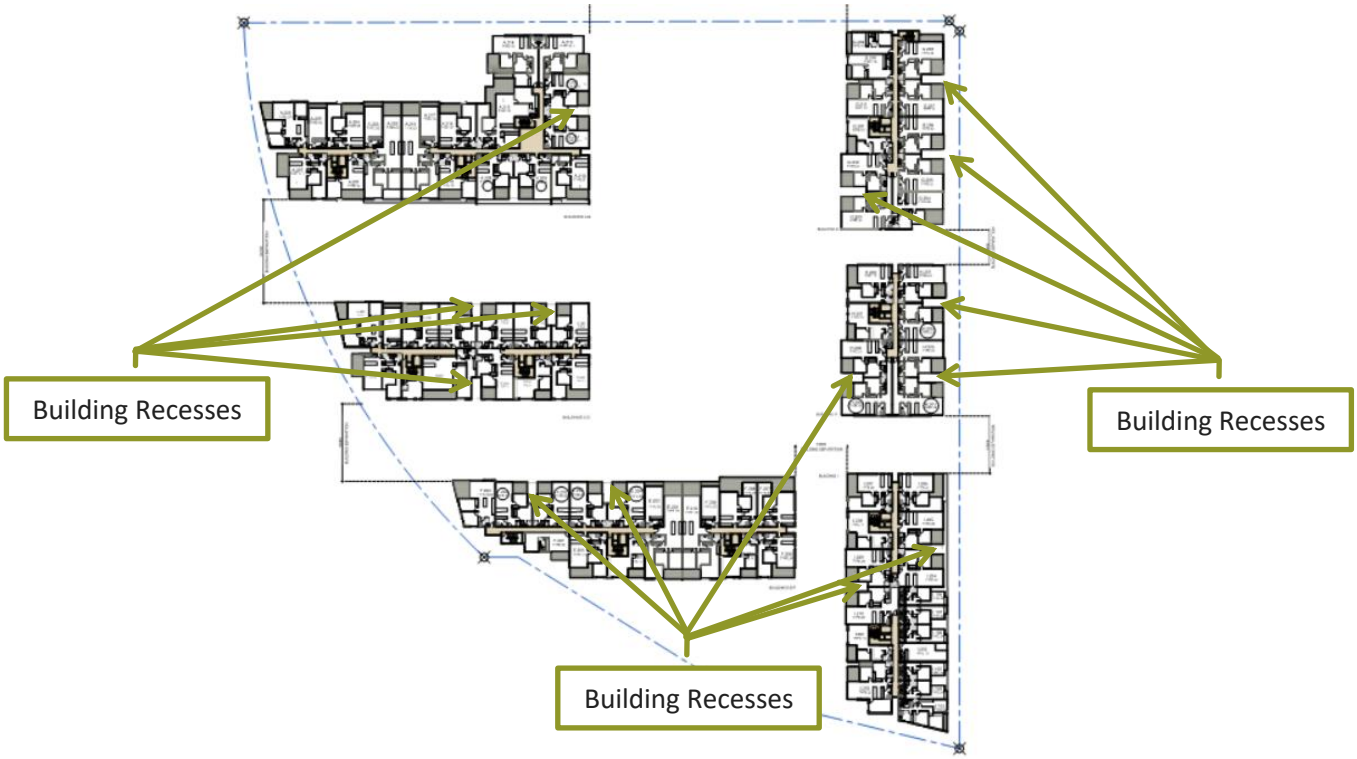
I.606 could achieve cross ventilation but there are no openings on the northern side of the apartment

6 Quantitative CFD Assessment

Some of the units in the development have windows facing slots and recesses. To be passed qualitatively the ADG requires that these indentations have a width to depth ratio of 2:1 or 3:1 which is not the case for this development. From experience SLR has found that numerical solutions including Computational Fluid Dynamics (CFD) and wind tunnel studies can prove these apartments to provide appropriate through apartment ventilation and circulation, for natural ventilation requirements.

SLR has been asked to assess the apartments that connect to the "slots" of each building. The locations of many of these slots are shown in **Figure 3**.

Figure 3 Building Slots and Recesses



A detailed computer model of the development was created using the Architectural Drawings and 3D model supplied by Studio MRA as dated above. Apartments on the Level 2, Level 3, Level 5 and Level 6 were included for detailed numerical assessment. The Computational Fluid Dynamics (CFD) specialised software FLUENT was used to model the following wind directions.

- North
- North east
- South east
- South
- South West
- West

The windows facing the slots were assumed to be fully open and have an operable area of 1m^2. Windows to other rooms were assumed to operable and two thirds open. For the case of Unit C.201 it was assumed that there would be sliding or folding doors from the living room to the balcony and that two of these were open.

In each case a wind speed of 1.66 m/s was used at 10 m high. Based on actual wind data across 11 years, the average wind speed measured at Sydney Olympic Park is higher than 2 m/s 69% of the time. The numerical modelling results in this study are therefore conservative and the volume of cross ventilation will likely increase with increasing approaching wind speeds.

Simple blocks were used for nearby surrounding buildings to include the impact of the surroundings on the natural ventilation for the proposed building. All velocities in the images are in metres per second and the simulation results are presented at a height of 1.5 metres above the floor level. This height is indicative only to show the flow around the apartment. SLR uses the modelled speeds to check there is at least three air changes per hour for each apartment.

6.1 CFD Results

SLR deems an apartment to have adequate natural ventilation if it shows reasonable airflow for four of the six wind directions tested. Reasonable flow means the apartment has airflow of at least three air changes per hour and shows flow from room to room without short circuiting. The images below show an example of a high flow case and a low flow case.

Figure 4 Building A in a North Wind – High Flow

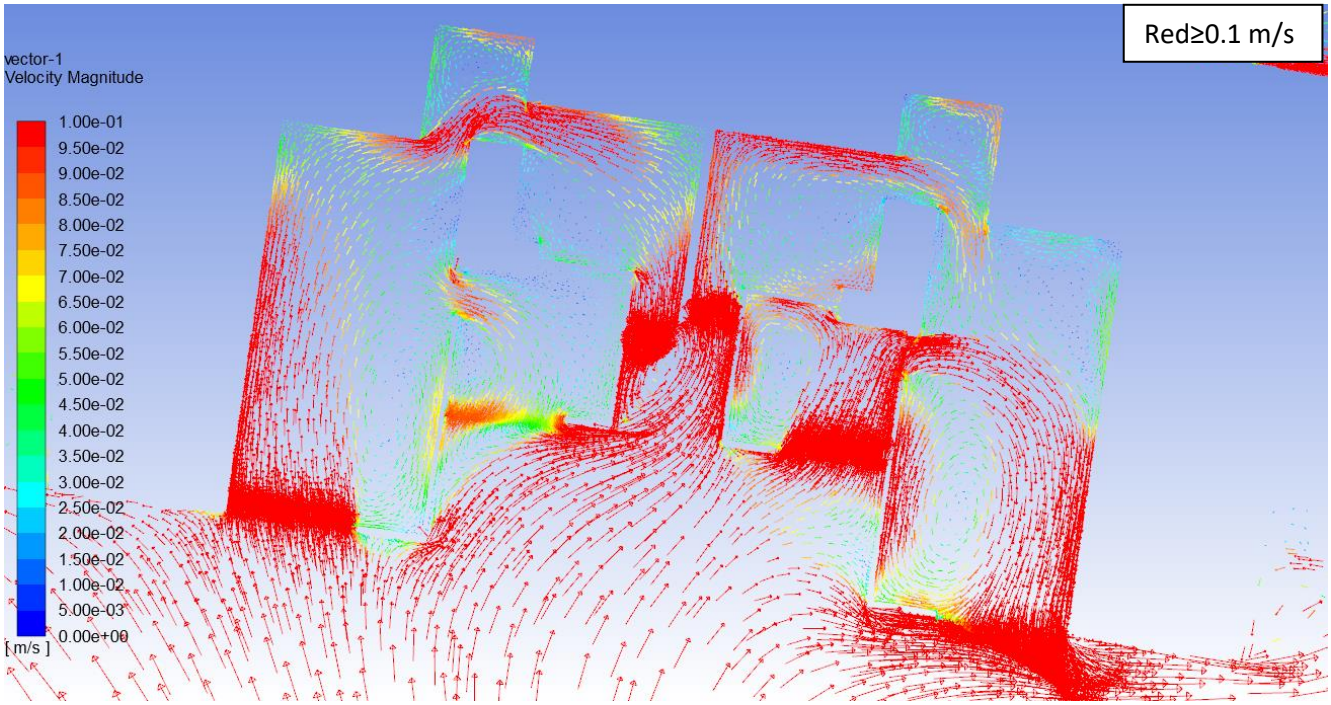
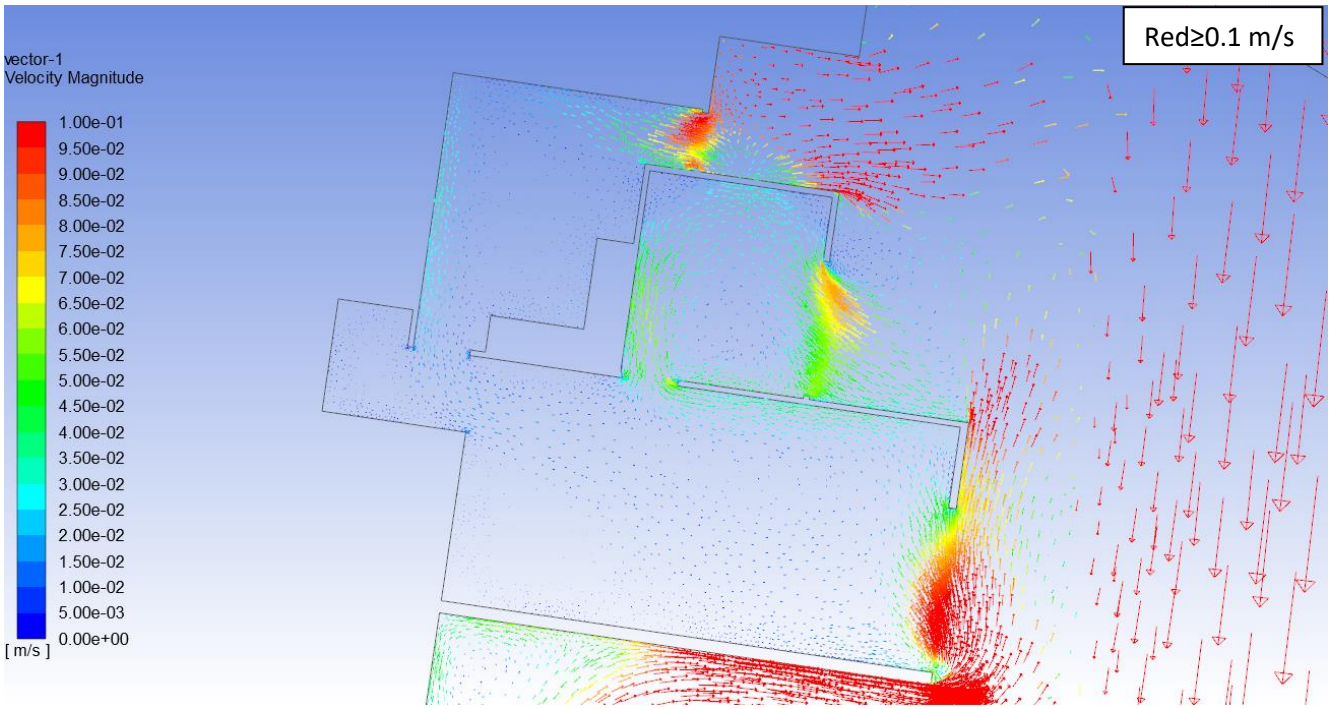


Figure 5 Building H in a North Wind – Low Flow



The CFD results are detailed in **Appendix A** and summarised in the following tables.

Table 7 Building A-B – Air Changes per Hour

Apartment	North	North East Winds	South East Winds	South Winds	South West Winds	West Winds	Overall Result
A208	7.5	19.6	9.3	5.5	4.6	1.1	PASS
A209	9.4	44.3	6.9	11.2	18.3	13.5	PASS
A211	19.4	17.6	6.1	6.4	21.4	12.1	PASS
A212	18.7	5.0	15.0	3.2	10.7	11.0	PASS
A608	9.6	9.4	8.9	7.7	16.9	1.1	PASS
A609	12.3	10.7	7.8	12.5	33.8	17.1	PASS
A611	10.5	31.2	15.0	5.7	18.3	0.2	PASS
A612	19.9	13.7	20.3	0.7	12.8	8.2	PASS

Table 8 Building C-D – Air Changes per Hour

Apartment	North	North East Winds	South East Winds	South Winds	South West Winds	West Winds	Overall Result
C201	7.7	8.5	3.8	22.6	23.6	8.2	PASS
C202	12.6	15.0	4.1	11.2	13.9	8.9	PASS
D204	31.9	33.8	15.9	7.5	12.6	3.0	PASS
D205	11.9	12.6	3.9	8.7	6.8	8.2	PASS
D206	8.0	21.4	6.1	2.7	26.7	10.9	PASS
D604	39.2	37.0	2.0	5.2	5.0	5.3	PASS

Table 9 Building E-F – Air Changes per Hour

Apartment	North	North East Winds	South East Winds	South Winds	South West Winds	West Winds	Overall Result
E204	4.8	16.0	4.6	7.9	9.7	10.1	PASS
E205	21.1	32.9	4.0	6.8	14.7	7.5	PASS
F202	9.7	3.8	4.0	5.7	15.2	18.9	PASS
F203	15.8	17.8	3.9	14.0	15.8	25.7	PASS
E604	23.7	16.2	5.1	3.5	6.4	6.4	PASS
E605	20.2	18.0	1.7	3.5	6.6	5.1	PASS
F602	16.7	18.0	1.8	2.2	8.6	9.7	PASS
F603	30.3	26.1	2.8	7.3	9.7	17.1	PASS

Table 10 Building G – Air Changes per Hour

Apartment	North	North East Winds	South East Winds	South Winds	South West Winds	West Winds	Overall Result
202	16.0	15.2	13.8	5.5	11.0	31.2	PASS
205	7.3	20.0	15.2	2.5	2.4	9.6	PASS
206	7.1	10.9	19.2	11.4	3.6	12.2	PASS
207	13.6	20.5	11.1	3.3	2.7	6.0	PASS
211	5.0	5.5	5.9	4.8	8.1	4.2	PASS
502	15.8	9.0	7.7	13.8	11.6	20.0	PASS
505	8.9	22.9	14.7	4.4	5.6	8.5	PASS
506	2.5	8.7	22.1	19.4	5.6	10.9	PASS
507	14.7	20.0	12.9	11.4	7.3	3.4	PASS
511	4.8	7.5	4.2	2.0	2.6	1.5	FAIL

Table 11 Building H – Air Changes per Hour

Apartment	North	North East Winds	South East Winds	South Winds	South West Winds	West Winds	Overall Result
202	14.5	16.3	6.2	8.4	7.3	8.8	PASS
205	9.6	18.9	23.7	15.6	8.6	14.0	PASS
206	2.1	16.9	9.3	5.3	4.6	3.6	PASS
502	18.9	9.4	1.1	13.6	6.6	13.0	PASS
505	1.7	12.9	23.9	24.1	7.5	8.6	PASS
506	7.1	19.8	9.8	16.4	4.3	3.7	PASS

Table 12 Building I – Air Changes per Hour

Apartment	North	North East Winds	South East Winds	South Winds	South West Winds	West Winds	Overall Result
204	3.9	22.8	18.2	4.4	11.0	7.0	PASS
205	11.0	12.3	27.6	9.0	15.1	12.7	PASS
209	13.6	9.4	7.3	30.1	37.5	38.6	PASS
305	15.3	25.2	23.2	2.6	11.3	14.4	PASS
306	5.1	14.4	22.8	10.6	6.9	16.4	PASS
313	8.2	18.3	6.0	11.3	23.4	29.2	PASS
507	20.0	20.2	17.1	4.8	18.2	5.7	PASS
508	5.1	7.9	23.9	15.2	10.7	13.2	PASS
512	3.9	11.4	5.3	20.9	25.7	27.6	PASS
605	6.2	26.1	13.7	5.3	3.5	13.9	PASS
606	32.3	21.9	25.4	22.3	12.4	8.8	PASS

Apartment	North	North East Winds	South East Winds	South Winds	South West Winds	West Winds	Overall Result
607	34.7	7.3	16.1	13.7	21.5	27.4	**PASS**

7 Overall Natural Ventilation Results

SLR modelled units on Level two and Level six to gain an understanding of apartments across all levels. Units on other levels are expected to perform in a similar manner to the nearest modelled apartment. This also includes 2-storey townhouses where the Level 1 slot is either directly below or very close to the modelled apartments above.

The overall results are summarised in following Tables.

Table 13 Apartments with Openings to Support Natural Ventilation – Building A-B

Level	Number of Apartments	No. Apartments Cross Ventilated (Qualitative)	Additional Apartments from Building slots (CFD)	Combined Total	Combined Total (%)
Ground	20	4	6	10	50.0%
1	11	3	0	3	27.3%
2	19	7	4	11	57.9%
3	19	9	4	13	68.4%
4	19	9	4	13	68.4%
5	19	9	4	13	68.4%
6	19	9	4	13	68.4%
7	19	9	4	13	78.9%
8	11	6	0	6	54.5%
Total	156	67	30	97	62.2%

Table 14 Apartments with Openings to Support Natural Ventilation – Building C-D

Level	Number of Apartments	No. Apartments Cross Ventilated (Qualitative)	Additional Apartments from Building slots (CFD)	Combined Total	Combined Total (%)
Ground	19	4	6	10	52.6%
1	7	2		2	28.6%
2	12	4	5	9	75.0%
3	12	4	5	9	75.0%
4	12	4	5	9	75.0%
5	13	6	1	7	53.8%
6	13	6	1	7	53.8%
7	13	9	1	10	76.9%
Total	101	39	24	63	62.4%

Table 15 Apartments with Openings to Support Natural Ventilation – Building E-F

Level	Number of Apartments	No. Apartments Cross Ventilated (Qualitative)	Additional Apartments from Building slots (CFD)	Combined Total	Combined Total (%)
Ground	22	5	6	11	50.0%
1	8	3	0	3	37.5%
2	16	7	4	11	68.8%
3	16	7	4	11	68.8%
4	16	7	4	11	68.8%
5	16	7	4	11	68.8%
6	16	7	4	11	68.8%
7	16	9	0	9	56.3%
Total	126	52	26	78	61.2%

Table 16 Apartments with Openings to Support Natural Ventilation – Building G

Level	Number of Apartments	No. Apartments Cross Ventilated (Qualitative)	Additional Apartments from Building slots (CFD)	Combined Total	Combined Total (%)
Ground	11	2	6	8	72.7%
1	5	2	0	2	40.0%
2	11	4	5	9	81.2%
3	11	4	5	9	81.2%
4	11	4	4	8	72.7%
5	11	11	0	11	100.0%
Total	60	27	20	47	78.3%

Table 17 Apartments with Openings to Support Natural Ventilation – Building H

Level	Number of Apartments	No. Apartments Cross Ventilated (Qualitative)	Additional Apartments from Building slots (CFD)	Combined Total	Combined Total (%)
Ground	9	2	5	7	77.7%
1	4	1		1	25.0%
2	8	4	3	7	87.5%
3	8	4	3	7	87.5%
4	8	4	3	7	87.5%
5	8	8	0	8	100.0%

Level	Number of Apartments	No. Apartments Cross Ventilated (Qualitative)	Additional Apartments from Building slots (CFD)	Combined Total	Combined Total (%)
Total	45	23	14	37	82.2%

Table 18 Apartments with Openings to Support Natural Ventilation – Building I

Level	Number of Apartments	No. Apartments Cross Ventilated (Qualitative)	Additional Apartments from Building slots (CFD)	Combined Total	Combined Total (%)
Ground	12	3	6	9	75.0%
1	11	2	4	6	54.5%
2	10	3	4	7	70.0%
3	13	4	6	10	76.9%
4	13	4	6	10	76.9%
5	13	7	4	11	84.6%
6	7	4	2	6	85.7%
Total	79	27	32	59	74.7%

8 Design Updates

Since the initial modelling exercise and assessment the proposed development has undergone some minor design changes. After a review of the drawings received by SLR on September 10th 2020 the following calculations have been reached:

Table 19 Building A-B After Alterations

Level	Number of Apartments	No. Apartments Cross Ventilated (Qualitative)	Additional Apartments from Building slots (CFD)	Combined Total	Combined Total (%)
Ground	20	5	6	11	55.0%
1	11	5	0	5	45.5%
2	19	9	4	13	68.4%
3	19	9	4	13	68.4%
4	19	9	4	13	68.4%
5	19	9	4	13	68.4%
6	19	9	4	13	68.4%
7	19	10	4	14	73.7%
8	11	6	0	6	54.5%
Total	156	70	30	100	64.1%

A.809 could achieve cross ventilation but there are no openings on the eastern side of the apartment.

Table 20 Building C-D After Alterations

Level	Number of Apartments	No. Apartments Cross Ventilated (Qualitative)	Additional Apartments from Building slots (CFD)	Combined Total	Combined Total (%)
Ground	19	4	6	10	52.6%
1	7	2	0	2	28.6%
2	12	4	5	9	75.0%
3	12	4	5	9	75.0%
4	12	4	5	9	75.0%
5	13	6	1	7	53.8%
6	13	6	1	7	53.8%
7	13	12	1	13	100.0%
Total	101	42	24	66	65.3%

Table 21 Building E-F After Alterations

Level	Number of Apartments	No. Apartments Cross Ventilated (Qualitative)	Additional Apartments from Building slots (CFD)	Combined Total	Combined Total (%)
Ground	22	5	6	11	50.0%
1	8	3	0	3	37.5%
2	16	8	4	12	75.0%
3	16	8	4	12	75.0%
4	16	8	4	12	75.0%
5	16	8	4	12	75.0%
6	16	8	4	12	75.0%
7	16	12	0	12	75.0%
Total	126	59	26	85	67.5%

9 Conclusion

SLR Consulting Australia Pty Ltd (SLR) has been engaged by 30 Auburn Road Pty Ltd to provide a natural ventilation analysis of the proposed 30-46 Auburn Road, Regents Park development. The assessment forms part of a rezoning review request to the Department of Planning Industry & Environment.

The State Environmental Planning Policy (SEPP) 65 supported by the Australian Design Guide is relevant to the assessment of the natural ventilation through residential components of proposed development. Section 4B-3 of the Australian Design Guide states that:

At least 60% of apartments are naturally cross ventilated in the first nine storeys of the building. Apartments at ten storeys or greater are deemed to be cross ventilated only if any enclosure of the balconies at these levels allows adequate natural ventilation and cannot be fully enclosed.

The proposed development implements a number of the ADG recommendations to maximize the natural cross ventilation throughout the development.

- The proposed development has been provided with openings on multiple sides of the apartments for the majority of proposed floor plans, allowing it to make use of wind-induced natural ventilation throughout the year and thereby minimising energy costs.
- The overall depth of cross-over or cross-through units does not exceed 18 m as per the Design Criteria of Objective 4B-3.

SLR has identified further apartments that could potentially achieve natural cross ventilation through utilising building slots and recesses with windows attached. These were analysed using Computational Fluid Dynamics (CFD) numerical modelling. The following summary also includes design changes made after the initial assessment received by SLR on September 10th 2020.

The following conclusions have been reached based on a qualitative review of the floorplans of the ADG complaint dual aspect units and quantitative numerical modelling of non-dual aspect units:

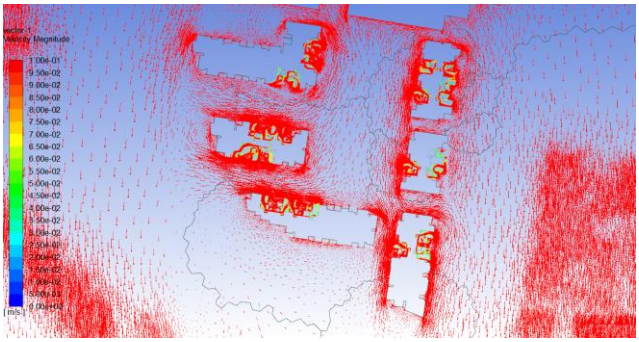
- 64.1% (100 out of 156) of the apartments in Building A-B will be naturally cross ventilated, thereby meeting the ADG requirements.
- 65.3% (66 out of 101) of the apartments in Building C-D will be naturally cross ventilated, thereby meeting the ADG requirements.
- 67.5% (85 out of 126) of the apartments in Building E-F will be naturally cross ventilated, thereby meeting the ADG requirements.
- 78.3% (47 out of 60) of the apartments in Building G will be naturally cross ventilated, thereby meeting the ADG requirements.
- 82.2% (37 out of 45) of the apartments in Building H will be naturally cross ventilated, thereby meeting the ADG requirements.
- 74.7% (59 out of 79) of the apartments in Building I will be naturally cross ventilated, thereby meeting the ADG requirements.

APPENDIX A

Vector Flow Diagrams

Red areas indicate speeds at or above 0.1 m/s

Level 2



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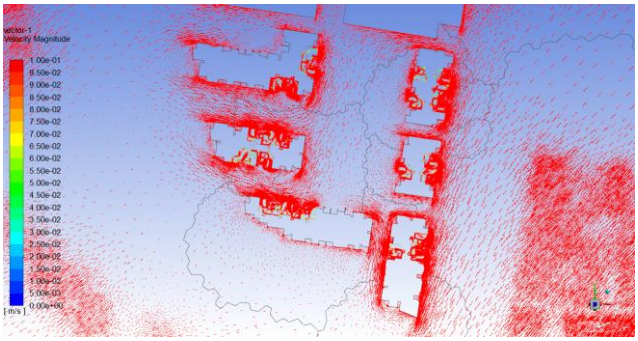

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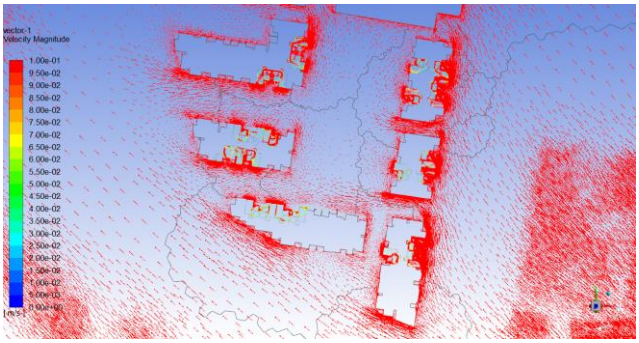

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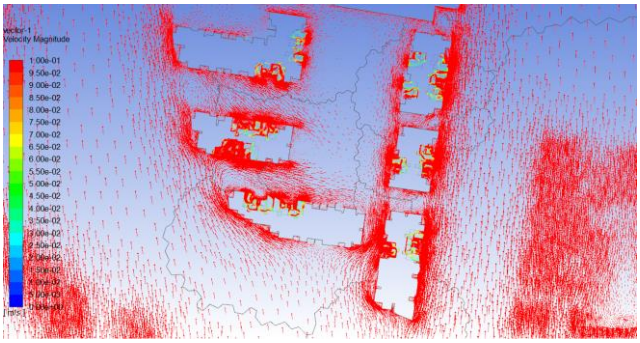

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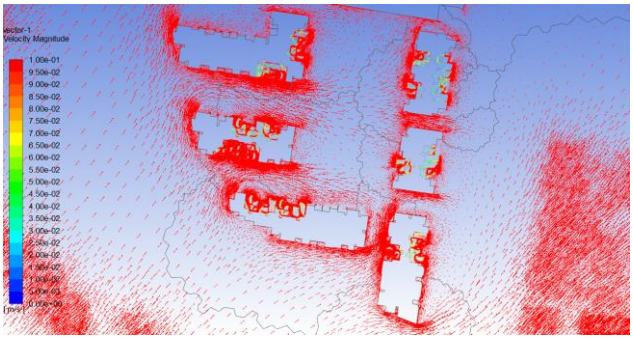

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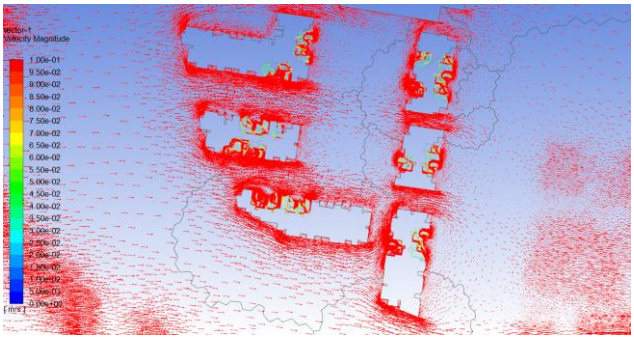

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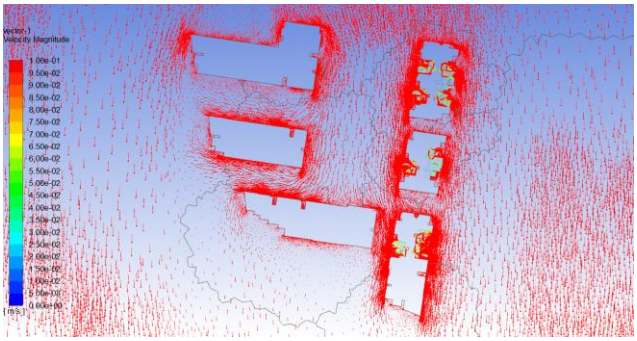

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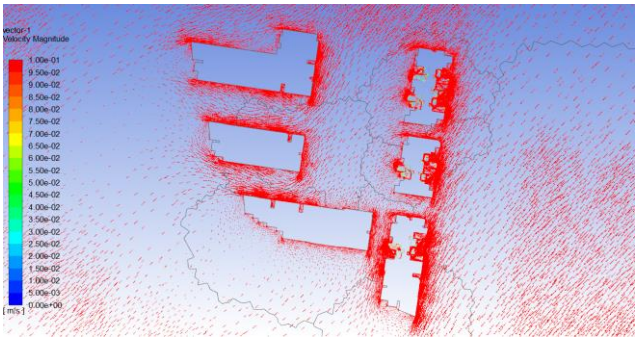

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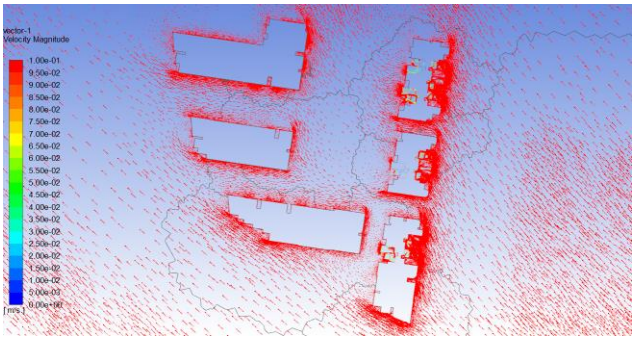

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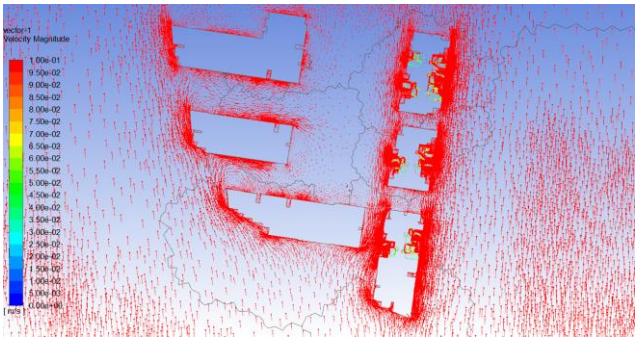

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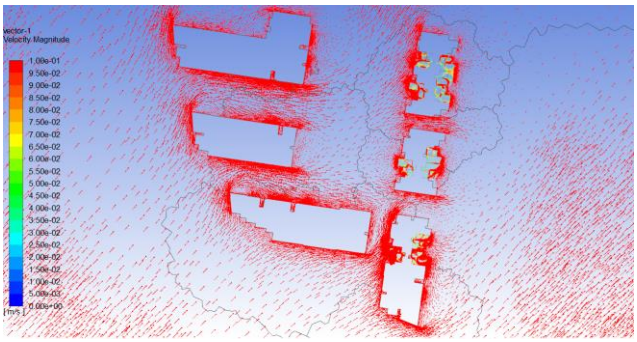

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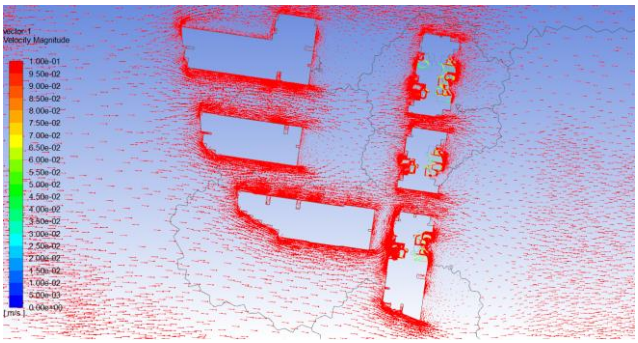

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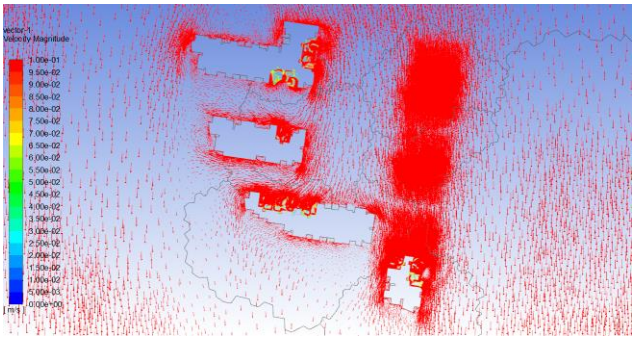
Level 6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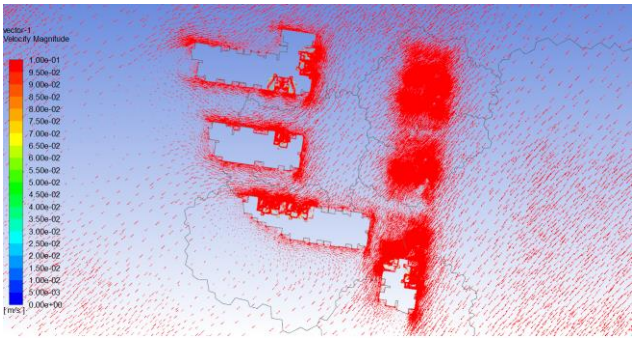
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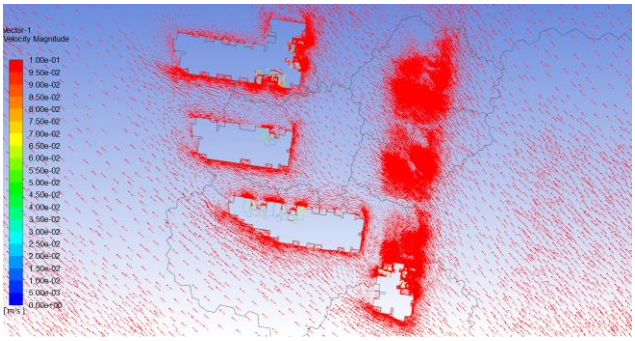
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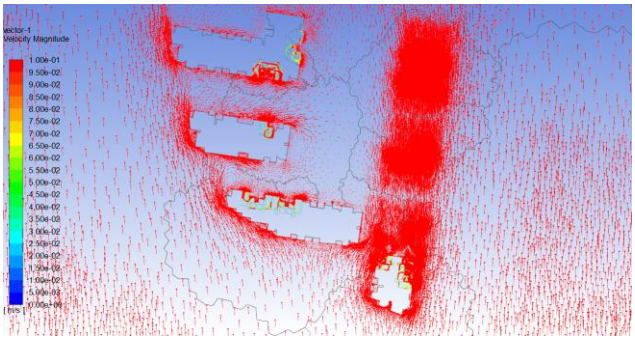
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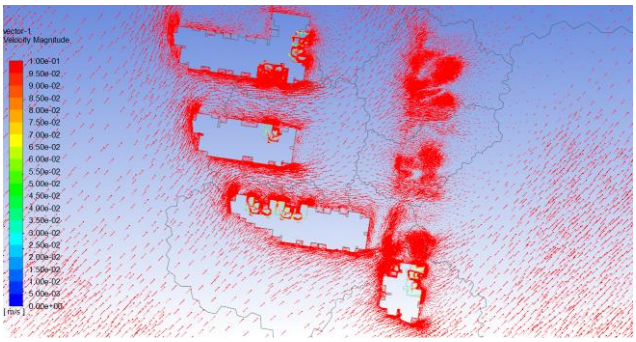
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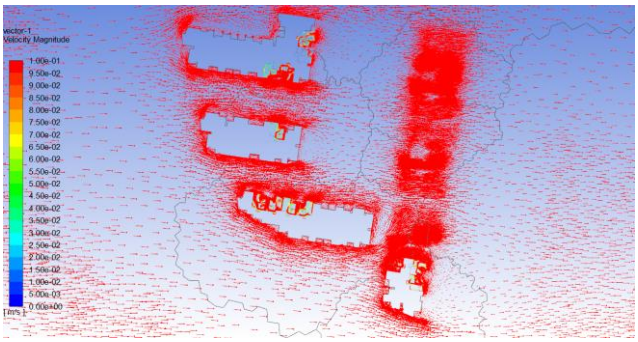
West

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