

**ADVERTISED
PLAN**

**2-12 WILKINSON STREET
BRUNSWICK**

ENVIRONMENTAL WIND ASSESSMENT

By



Report 24058A-DE-EWA01

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1. INTRODUCTION

The proposed development at 2-12 Wilkinson Street, Brunswick, will be a seven storey residential building on the corner of Wilkinson Street and Rosser Street. The location is highlighted in Figure 1.



Figure 1: Location of the proposed development at 2-12 Wilkinson Street, Brunswick (highlighted in red) [Google maps]

This assessment was commissioned by Haven Home Safe and is based on a review of drawings prepared by MGS Architects listed in Appendix A and considers current existing surrounds and under construction buildings (i.e. no proposed future buildings) as well as the approved future development at 342-348 Victoria Street. This desktop environmental

wind assessment is based on MEL Consultants knowledge of wind flow around buildings and structures from undertaking numerous wind tunnel model studies, no wind tunnel study has been undertaken for this study.

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2. THE DEVELOPMENT

The development at 2-12 Wilkinson Street will be a 7-storey building (22.3m) with the main entrance central to the Wilkinson Street frontage and retail entrances along both the Wilkinson and Rosser Street facades. The ground level floor plan is presented in Figure 2.

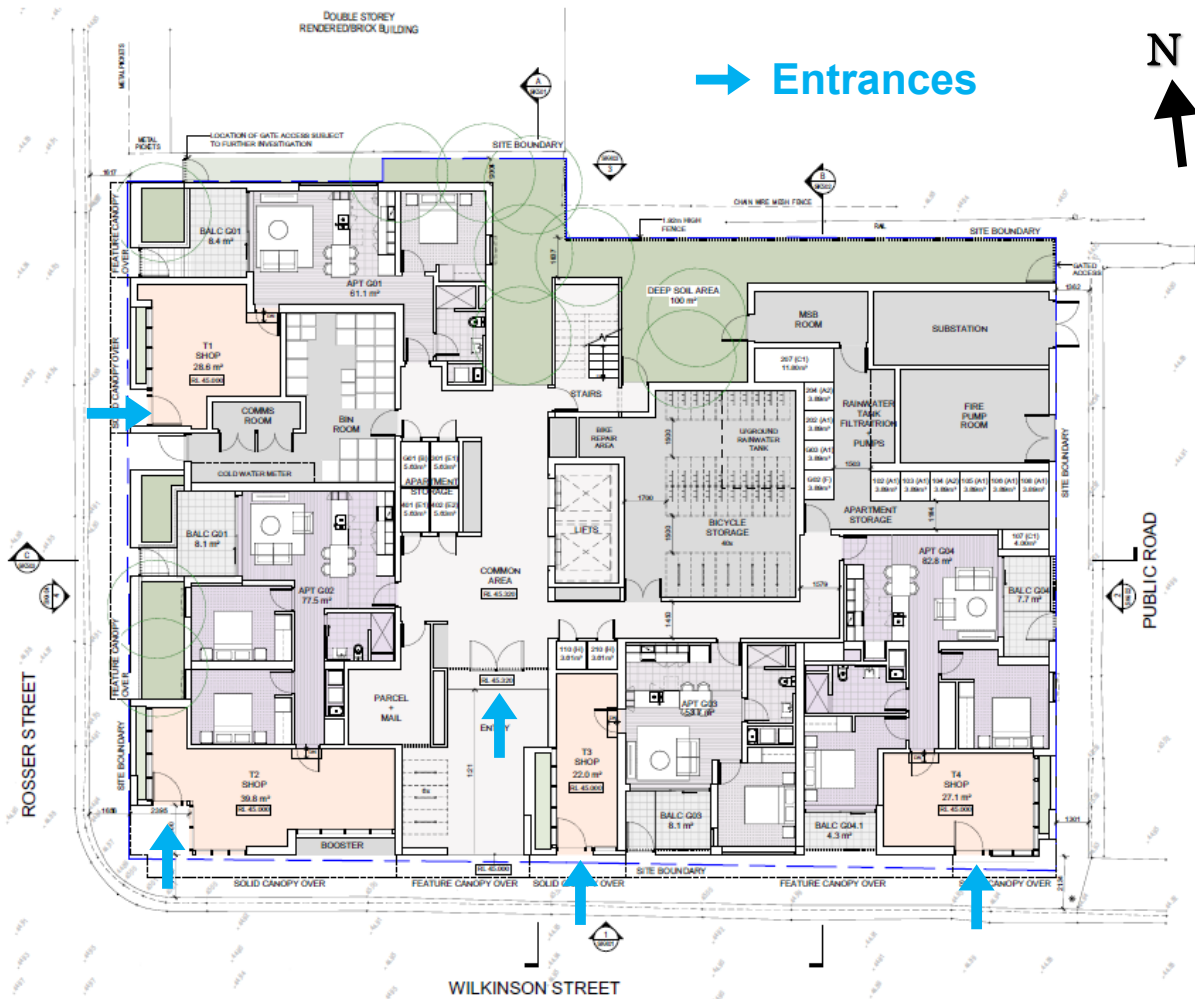


Figure 2: Ground level Floor plan.

The main entrance will be set back from Wilkinson Street and consist of an approximately 2m high, porous (vertical slats or bars) gate and side panels to the width of the entry. The main entrance opens to the ground level Common Area which accesses the ground level residential tenancies and other building services, such as lifts/stairs and storage, as well as a direct thoroughfare to the deep soil area to the north of the proposed development.

There is a 1.25m deep canopy along the majority of the Wilkinson Street and Rosser Street frontages. The floorplate of Levels 1 and 2 (Figures 3 and 4) are set back approximately

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2.3m from the west site boundary and the remaining faces have the same setbacks from the site boundaries as the ground level. The floorplate of Level 3 (Figure 5) is set further back from the northern (approximately 5.9m), western (approximately 5.0m) and southern (approximately 8.0m) site boundaries, creating a combination of roofs, balconies on the western face, and a podium terrace on the south. There is a pergola over a large portion of the podium terrace. Levels 4 and 5 (Figure 6) have the same set backs as Level 3 and have balconies on the western face. At Level 6 (Figure 7) the building is further set back from the west (approximately 14.4m) and east (approximately 8.6m) site boundaries, for plant equipment and solar panels (west) and a Roof Terrace (east). The building setbacks and balustrade heights can be seen from the south and west elevations in Figures 8 and 9.

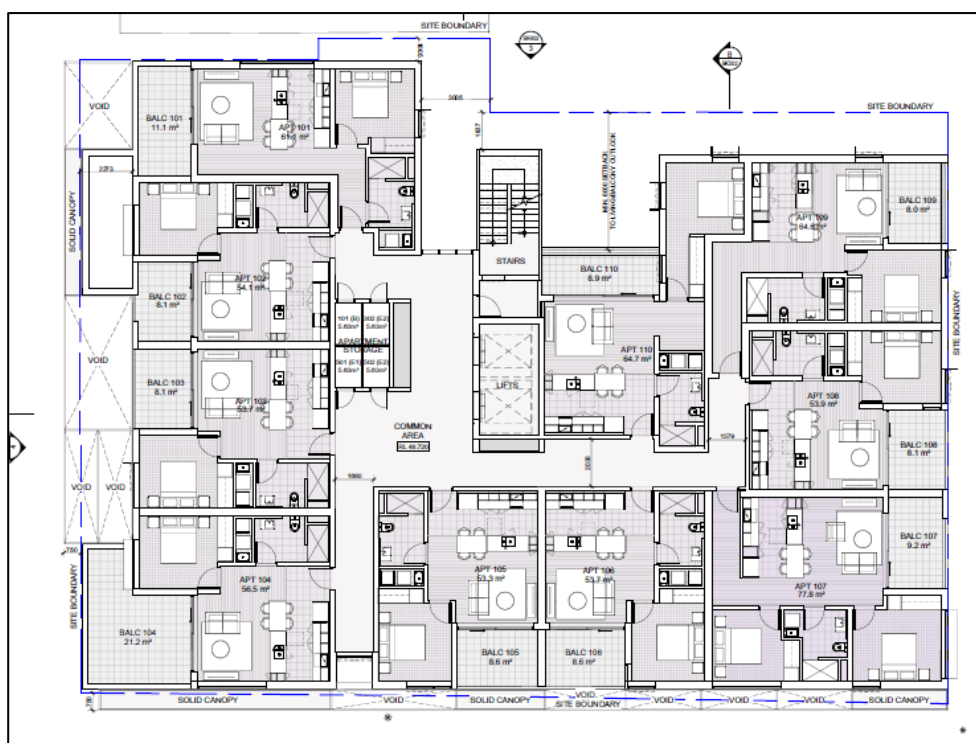


Figure 3: Level 1 Floor plan

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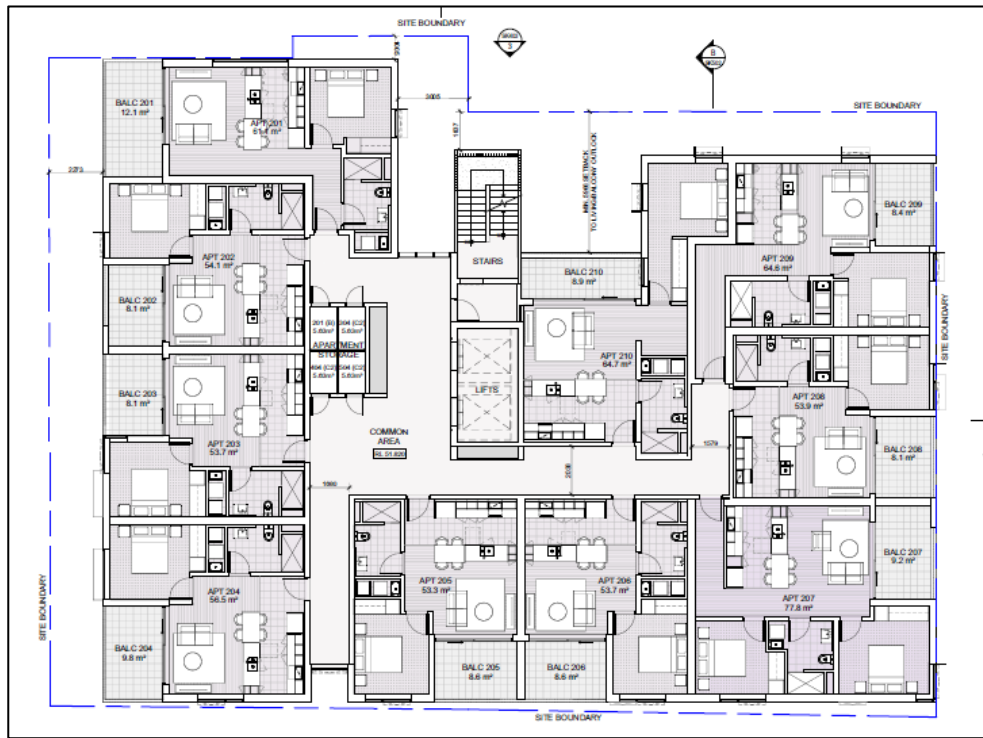


Figure 4: Level 2 Floor plan.

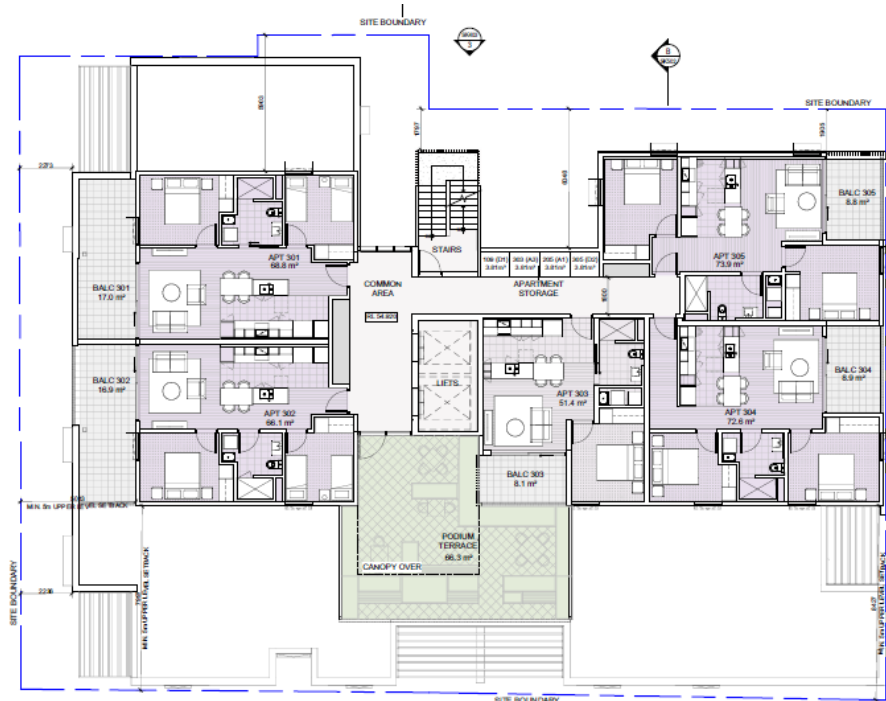


Figure 5: Level 3 Floor plan.

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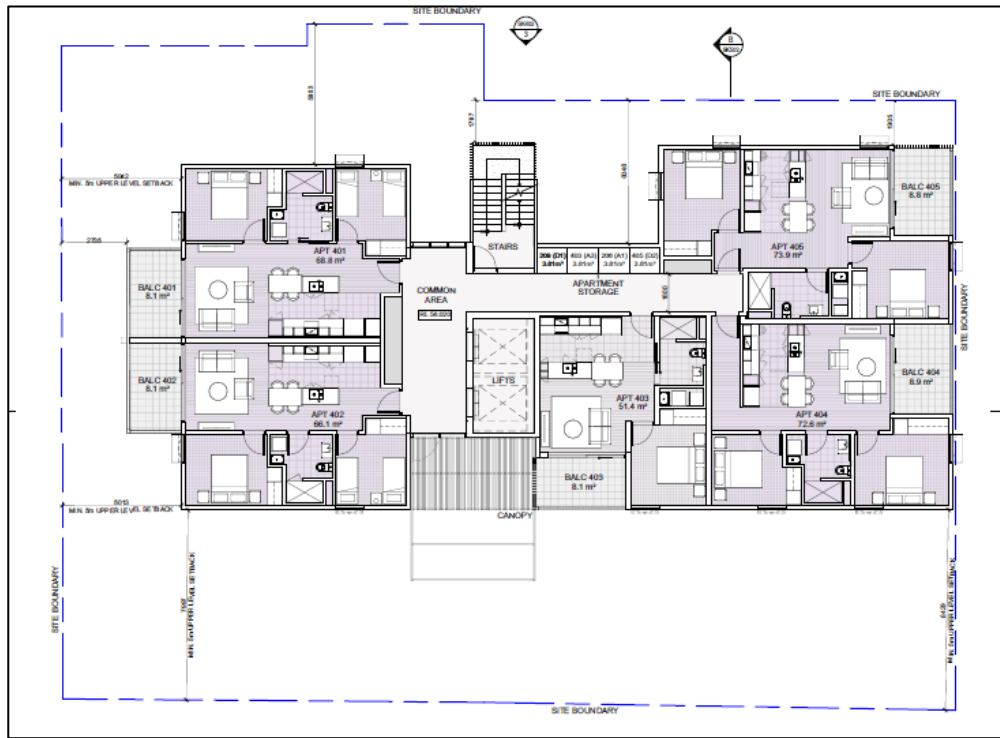


Figure 6: General Floor plan for Levels 4 and 5 (Level 4 shown).

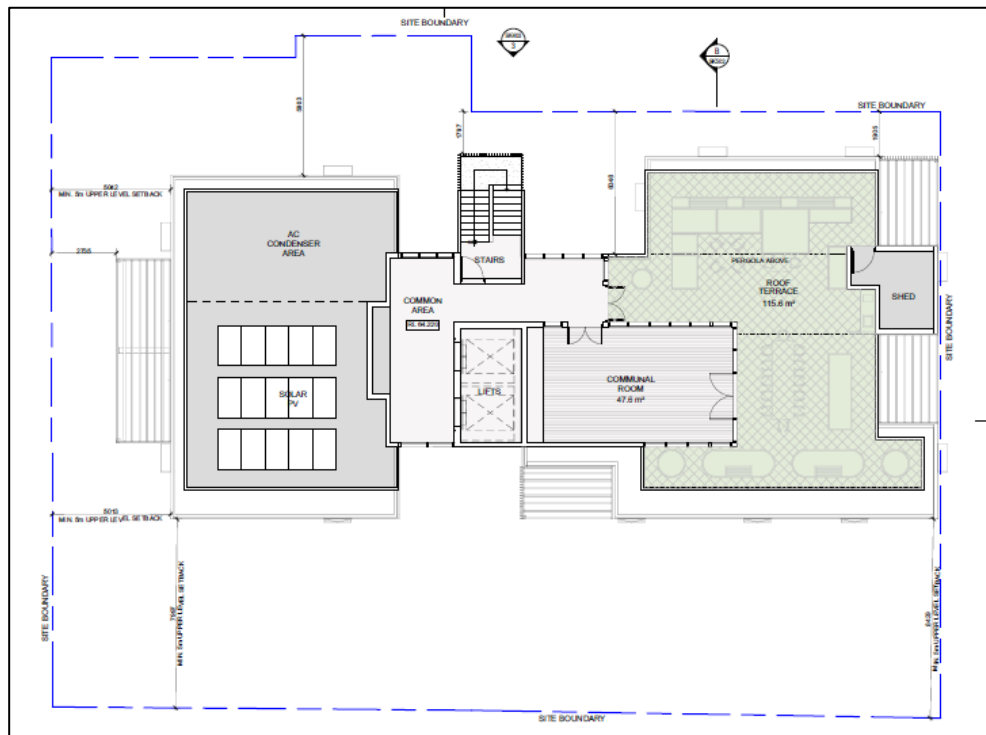


Figure 7: Level 6 Floor plan.

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Figure 8: South Elevation.

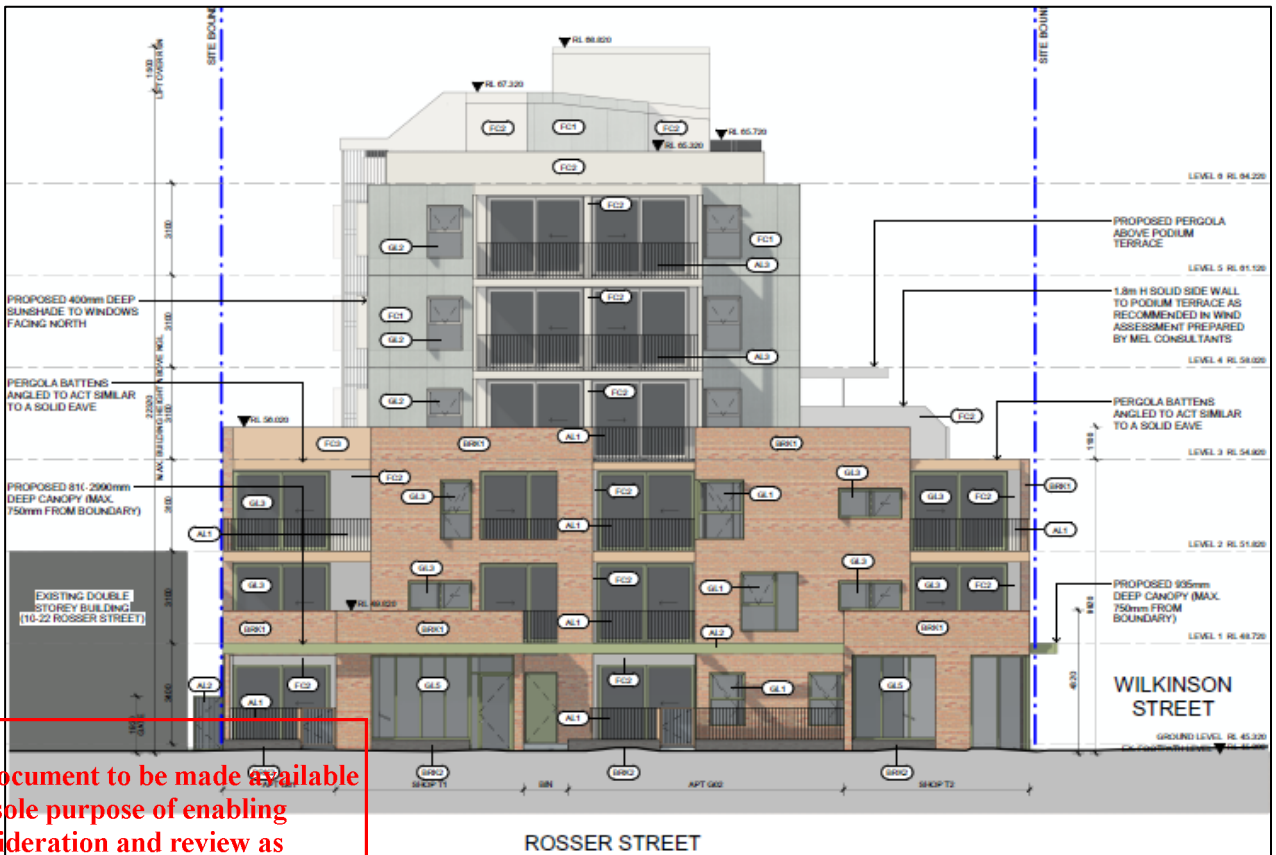


Figure 9: West Elevation

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3. WIND ENVIRONMENT AND EXPOSURE

The strongest and most frequent winds in the Melbourne Region come from the north and west sectors with secondary strong winds coming from the south sector; east sector winds are relatively light and infrequent.

The buildings in the immediate vicinity of the proposed development would be the future 342-348 Victoria Street development, a 4 tower development ranging from 9 to 11 levels in height, a carpark to the east, and to the north are the carpark and a 2 storey building, and a 6 storey apartment block and a 2 storey commercial building to the south. In the far field for all wind directions, the terrain is largely characterised by typical low-rise commercial buildings and 1-3 level terrace housing with some sparse multi-level (greater than 5 storeys) developments.

Based on the above, it would be expected that the entire height of the west facade of the proposed development would be shielded from direct wind exposure by the future 342 – 348 Victoria Street development while the lower levels (up to Level 3) of the proposed development would have shielding from direct wind exposure from the north, through east, to south due to nearby buildings. The upper levels of the development would be exposed to direct wind flow from most wind directions between north through to south with the exception of some southerly winds as the building extends above the adjacent surrounding buildings.

4. ASSESSMENT CRITERIA

The Merri-Bek Planning Scheme defines wind safety and comfort criteria in Clause 58.04-4 for apartment buildings. These criteria are defined as follows:

58.04-4 Wind Impacts Objective

To ensure the built form, design and layout of development does not generate unacceptable wind impacts within the site or on surrounding land.

Standard D17

Development of five or more storeys should:

- *not cause unsafe wind conditions specified in Table D6 in public land, publicly accessible areas on private land, private open space and communal open space; and*
- *achieve comfortable wind conditions specified in Table D6 in public land and publicly accessible areas on private land*

within a distance of half the greatest length of the building, or half the total height of the building measured outwards on the horizontal plane from the ground floor building façade, whichever is greater.

Trees and landscaping should not be used to mitigate wind impacts. This does not apply to sitting areas, where trees and landscaping may be used to supplement fixed wind mitigation elements.

Wind mitigation elements, such as awnings and screens should be located within the site boundary, unless consistent with the existing urban context or preferred future development of the area.

Table D6 Wind Conditions

Unsafe	Comfortable
<p><i>Annual maximum 3 second gust wind speed exceeding 20 metres/second with a probability of exceedance of 0.1% considering at least 16 wind directions.</i></p>	<p><i>Hourly mean wind speed or gust equivalent mean speed (3 second gust wind speed divided by 1.85), from all wind directions combined with probability of exceedance less than 20% of the time, equal to or less than:</i></p> <ul style="list-style-type: none"> • <i>3 metres/second for sitting areas</i> • <i>4 metres/second for standing areas</i> • <i>5 metres/second for walking areas</i>

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Trees and landscaping should not be used to mitigate wind impacts. This does not apply to sitting areas, where trees and landscaping may be used to supplement fixed wind mitigation elements.

Wind mitigation elements, such as awnings and screens should be located within the site boundary, unless consistent with existing urban context or preferred future development of the area.

The above criteria are pass/fail criteria as they only assess the summation of probabilities of exceedance across all wind directions to determine whether a location passes or fails the threshold criterion i.e. the criteria assess the average wind conditions.

5. RECOMMENDED WIND COMFORT CRITERIA

The following wind comfort criteria are recommended:

Streetscapes	Walking
Building Entrances	Standing
Private outdoor Terraces/Balconies	Walking
Communal Terraces	Standing

The activation of the public realm external to the site would depend on the existing wind conditions in the streetscapes that are often beyond the control of the proposed development. For cases where the existing wind conditions in the public realm external to the site are expected to be on or above the walking criterion, then the proposed development should not have any additional adverse wind effects in these areas.

The wind conditions on private outdoor terraces/balconies have been recommended to satisfy the walking criterion as these spaces could be considered elective when external conditions would be perceived as acceptable for the desired activity. The wind conditions on the communal terraces, e.g. the podium and rooftop terraces, however, have been recommended to satisfy the standing criterion as these spaces would be expected to have higher utilisation for recreational activities. Users of all terraces/balconies will need to be educated on the wind effects and loose objects should not be left on an unattended terrace/balcony.

6. WIND ASSESSMENT

6.1 Wilkinson Street

The wind conditions along Wilkinson Street would be influenced by downwash off the southern face of the development for winds incident onto it, as well as induced flow separating off the southeast corners from Ground Level to Level 2 of the proposed development for east sector winds. The set back of the southern face above Level 2 would be expected to deflect downwash off the upper levels above ground level. Furthermore, the 6 storey apartment building directly to the south of the proposed development would provide significant shielding from south winds. It should be noted that the proximity of the 6 storey apartment building to the proposed development would be expected to funnel flow along Wilkinson Street for westerly and southeasterly winds, increasing wind speeds through this gap and around the southwest corner.

Based on the above scenario, the wind conditions along Wilkinson Street would be expected to increase compared to those of the existing conditions but satisfy the walking comfort criterion and the safety criterion. The wind conditions at the recessed main entrance to the proposed development from Wilkinson Street and retail entrances to the T3 and T4 shops would be expected to satisfy the standing criterion.

6.2 Rosser Street

The wind conditions along Rosser Street would be mostly influenced by northeasterly winds that are funnelled between the proposed development and the southeast tower of the future 342 – 348 Victoria Street development, and from southeasterly winds that are funnelled along Wilkinson Street, as discussed in Section 6.1. The set backs of the upper levels from the site boundaries would reduce downwash into Rosser Street, and subsequently reducing the amount of flow being funnelled.

Based on the above scenario, the wind conditions along Rosser Street would be expected to satisfy the walking comfort criterion and the safety criterion. The wind conditions at the retail entrances to the T1 shops would be expected to achieve the standing comfort

criterion. The wind conditions around the southern corners of the proposed development, which includes the entry into the T2 shop, would be expected to satisfy the walking comfort, which would be above that recommended for a building entrance. It would be recommended that the entry to the T2 shop be moved further away from the southeast corner (refer to Figure 10 below), in order to satisfy the standing criterion.

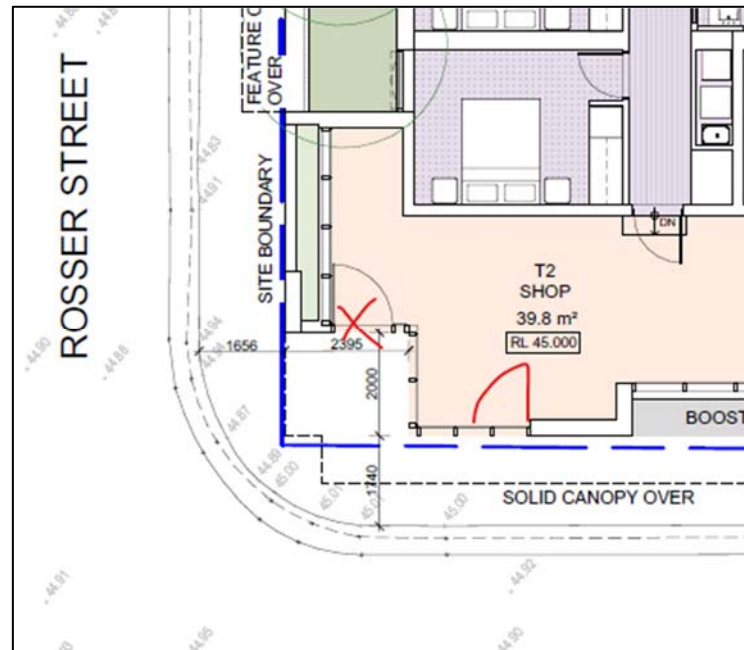


Figure 10: Recommended location of T2 Shop entrance off Wilkinson Street.

6.3 North and Carpark East of the Proposed Development

The wind conditions to the north and east of the proposed development, the deep soil area and the carpark, would be influenced by downwash of winds incident onto the north and east faces of the building and by flow separating off the eastern corners of the building for north, east and south winds. Winds from the east are relatively light and infrequent so the impact on wind conditions to the north and east of the proposed development from these winds would be low. Based on the above scenario, the wind conditions to the north and east of the proposed development would be expected to increase compared to those of the existing conditions, particularly around the northeast corner, but satisfy the walking comfort criterion and the safety criterion.

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6.4 Ground Floor Common Area

With the ground floor Common Area open from the north (deep soil area) and south (Wilkinson Street) there would be increased wind flow through this area due to pressure difference between the openings. The wind conditions within the Common Area would be expected to satisfy the walking comfort criterion and the safety criterion.

6.5 Terraces/Balconies

Balconies on the proposed development away from building corners, e.g. balconies inset from the building line and those extending beyond the facade line but central to a facade, would be expected to have wind conditions that satisfy the standing criterion or better and the safety criterion.

The corner balconies on the proposed development, e.g. balconies on the northeast corner of all levels, the balconies at the southwest corner of Ground Level up to Level 2, the northwest balcony on Level 2, and the western balconies of Level 3, would be expected to experience localised flow speed up around the corner but would be expected to satisfy the walking comfort criterion and the safety criterion. Peak gust wind speeds across the northern balconies for northerly winds would be expected to be high, but within the safety criterion. The solid (Levels 1 and 2) or screened (Level 3 to 5) northern aspect of the northwestern corner balconies would increase the amenity of these balconies by restricting flow accelerating around the corners. The northwest corner balconies on Ground Level and Level 1 would have localised flow speed up around the corner restricted by the proximity of the neighbouring two storey building and therefore wind conditions on these balconies would be expected to satisfy the standing criterion or better and the safety criterion.

The wind conditions on the Level 3 podium terrace would be influenced by downwash off the upper levels for some southerly winds and the funnelled flow from westerly and southeasterly winds. The pergola over the terrace would help in deflecting some of the blowing air from the upper levels and solid walls at the east and west ends of the terrace

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would reduce the amount of flow across the terrace such that overall, the wind conditions on the terrace would be expected to achieve the standing criterion and the safety criterion.

The Rooftop Terrace would generally benefit from winds incident to the top third of the building tending to flow up and over the building, while the 1.5m high solid balustrades would provide good localised protection of the terrace. Whilst there would be some element of gustiness to this rooftop area due to the swirling turbulent flows across the top of the building, the wind conditions on the terrace would be expected to satisfy the standing criterion and the safety criterion.

7. CONCLUSIONS

We have assessed the likely environmental wind conditions in the streetscapes surrounding the proposed development at 2-12 Wilkinson Street, Brunswick, detailed in drawings by MGS Architects listed in Appendix A.

It has been assessed that the wind conditions in the streetscapes surrounding the proposed development at 2-12 Wilkinson Street would satisfy the walking comfort criterion while the wind conditions at the entrances to the building would achieve the standing criterion.

It has been assessed that the wind conditions through the ground floor Common Area would satisfy the walking comfort criterion.

The wind conditions on all private balconies/terraces, would be expected to satisfy the walking criterion or better. Wind mitigation strategies have been incorporated in the designs for the communal podium and rooftop terraces and wind conditions have been assessed to satisfy the recommended standing criterion.

The wind conditions in all publicly accessible areas would satisfy the pedestrian safety criterion.

Author



MEL Consultants Pty Ltd
20 September 2024

Approved by



RPEV: PE0006965

MEL Consultants Pty Ltd
20 September 2024

Appendix A – Drawing Register

Drawing #	Rev	Date	Title
SK000	C	28.08.2024	COVER PAGE
SK101	D	28.08.2024	EXISTING SITE & DEMOLITION PLAN
SK201	D	28.08.2024	GROUND FLOOR PLAN
SK202	D	28.08.2024	LEVEL 1 FLOOR PLAN
SK203	D	28.08.2024	LEVEL 2 FLOOR PLAN
SK204	D	28.08.2024	LEVEL 3 FLOOR PLAN
SK205	D	28.08.2024	LEVEL 4 FLOOR PLAN
SK206	D	28.08.2024	LEVEL 5 FLOOR PLAN
SK207	D	28.08.2024	LEVEL 6 FLOOR PLAN
SK401	D	28.08.2024	BUILDING ELEVATION (SOUTH)
SK402	D	28.08.2024	BUILDING ELEVATION (EAST)
SK403	D	28.08.2024	BUILDING ELEVATION (NORTH)
SK404	D	28.08.2024	BUILDING ELEVATION (WEST)
SK411	B	28.08.2024	MATERIALS & FINISHES
SK501	C	28.08.2024	BUILDING SECTION
SK502	D	28.08.2024	BUILDING SECTION
SK503	D	28.08.2024	BUILDING SECTION
SK601	B	28.08.2024	APARTMENT TYPES
SK602	B	28.08.2024	APARTMENT TYPES
SK603	B	28.08.2024	APARTMENT TYPES
SK604	B	28.08.2024	APARTMENT TYPES
SK605	B	28.08.2024	APARTMENT TYPES
SK611	C	28.08.2024	DEVELOPMENT SUMMARY
SK701	C	28.08.2024	SHADOW DIAGRAM – SPRING EQUINOX
SK702	C	28.08.2024	SHADOW DIAGRAM – SPRING EQUINOX
SK703	C	28.08.2024	SHADOW DIAGRAM – SPRING EQUINOX
SK704	C	28.08.2024	SHADOW DIAGRAM – SPRING EQUINOX
SK705	C	28.08.2024	SHADOW DIAGRAM – SPRING EQUINOX
SK706	C	28.08.2024	SHADOW DIAGRAM – SPRING EQUINOX
SK711	C	28.08.2024	SHADOW DIAGRAM – WINTER SOLSTICE

Note: PDF Drawings Received 2 September 2024

Filename: 240902_Architectural Drawings.pdf