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30-32 Wellington Road, Clayton

Daylight Report

Prepared for: Telha Clarke

Project No: MEL2160
Date: 8 October 2020
Revision: 02



Project: 30-32 Wellington Road, Clayton
Location: 30-32 Wellington Road
Clayton, VIC, 3168
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1. Introduction

This report provides an overview of the daylight study conducted for the proposed student residential development, at 30-32 Wellington Road, Clayton, within the municipal boundaries of the City of Monash.

The objective of this report is to describe the methodology and results of daylight amenity to the residential apartments within the development, benchmarked against the best practice sustainability rating tool, BESS.

1.1 Project background

The site is located at 30-32 Wellington Road, Clayton covering a total development area of 1,457m², bordered by Wellington Road to the north and Irwin St to the east, refer Figure 1. The development is proposed to consist of student residential accommodation, communal areas and basement carparks.

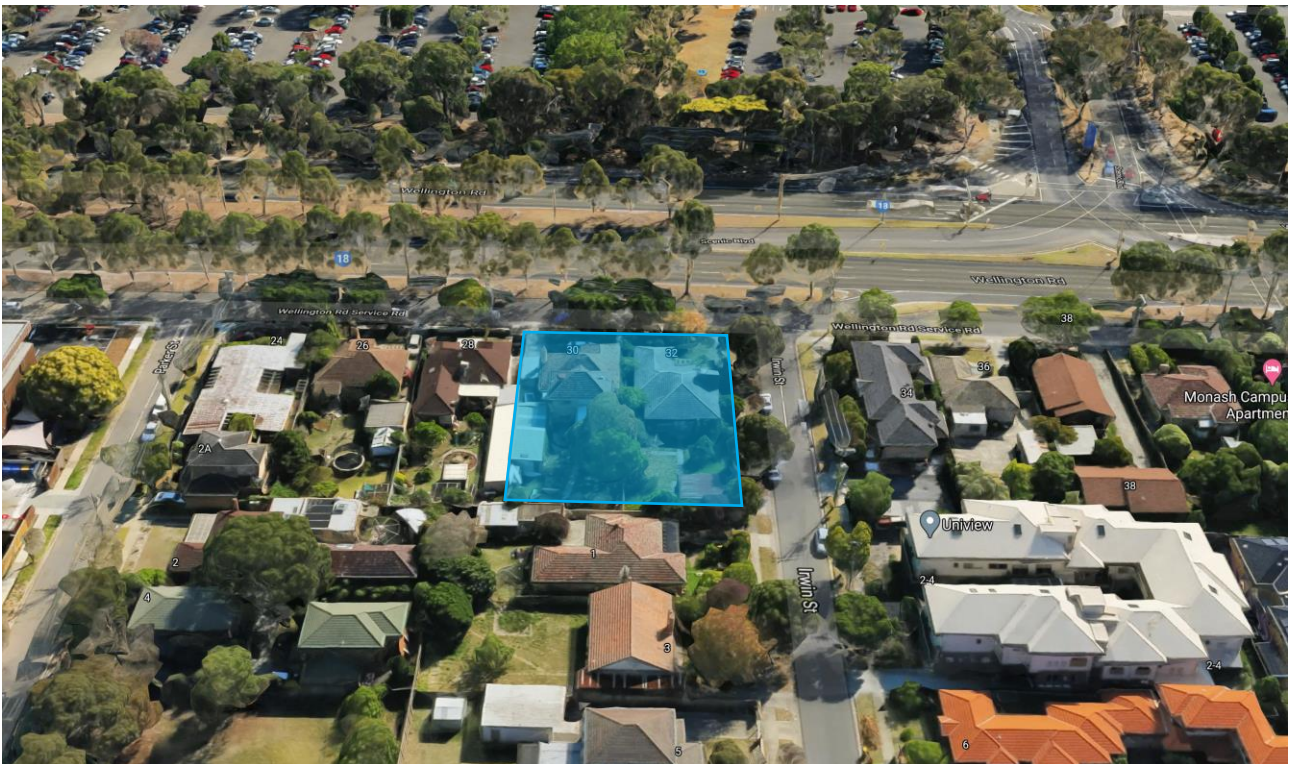


Figure 1: Site location of the proposed development

1.2 Statutory context

1.2.1 City of Monash

The site is situated in Clayton within the municipal boundaries of the City of Monash. The City of Monash has objectives and strategies relating to ESD which are contained in the Monash Planning Scheme and Planning Policies. These policies and objectives have been taken into consideration throughout this assessment and in our advice given to the applicant.

As part of Town Planning requirements, the project team is to demonstrate best practice daylight levels to the student accommodation rooms in the development, in line with the BESS rating tool, specifically;

- > A Daylight Factor (DF) of at least 0.5 for 90% of the Bedroom floor area for at least 80% of bedrooms

2. Methodology

The daylight study is being conducted using the Daylight Factor method, which calculates the ratio of light levels inside a building to the light levels outside the building. The higher the daylight factor, the better the daylight provision to the indoor space. Daylight Factor calculations rely on a standard overcast sky model and is not dependant on time, season or location-based inputs.

Daylight modelling is being conducted using the Integrated Environmental Solutions: Virtual Environment 2019 (IES:VE) software which uses the Radiance daylight simulation component to model daylight factor results.

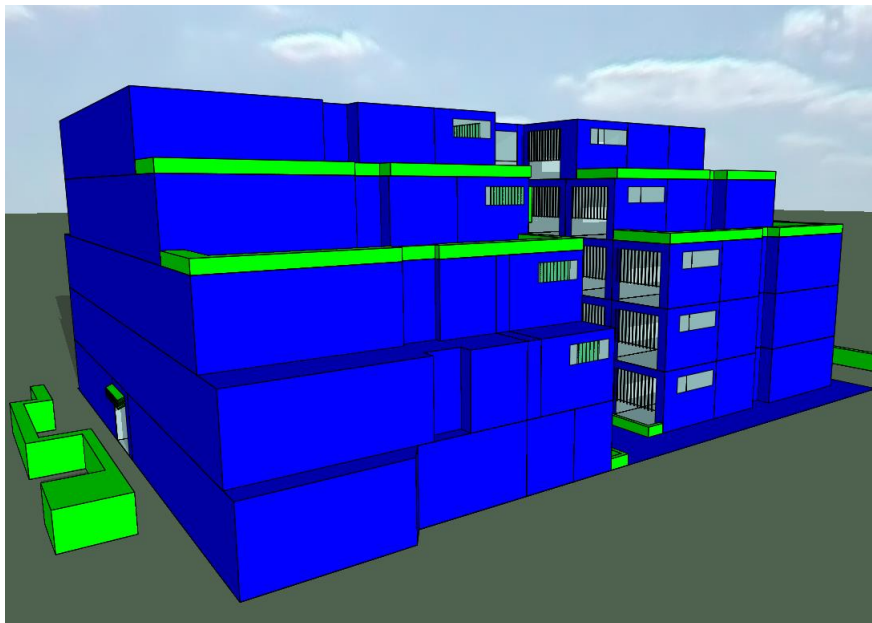


Figure 2: Proposed development model, north-west elevation

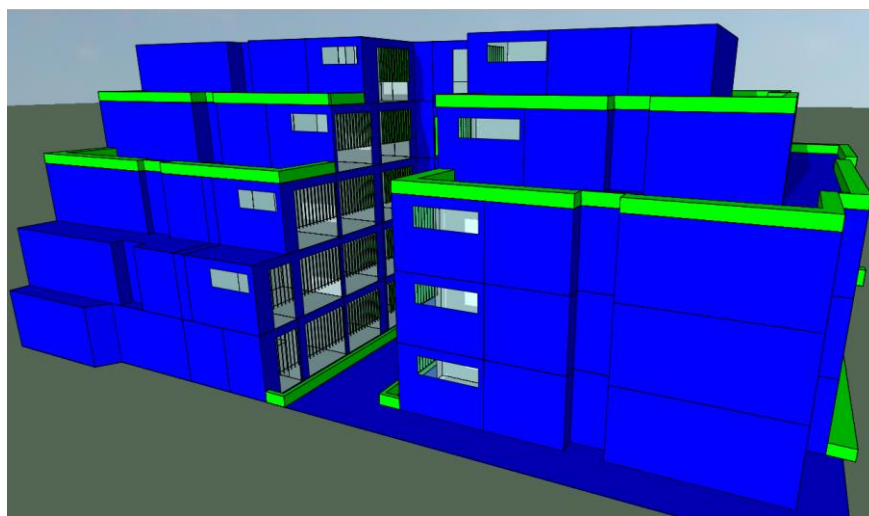


Figure 3: Proposed development model, Stair detail elevation to bedrooms

2.1 Inputs and assumptions

The following table outlines the inputs and assumptions used in the daylight modelling analysis;

Table 1: Inputs and assumptions used in the daylight study

Item	Parameter
Architectural drawings	Telha Clarke Work in Progress Drawings 15/09/2020
Apartment floor to ceiling heights	3.00 m
Glazing extent	Variable (60-80%)
Glazing visible light transmissivity	42% medium to light grey glass
Floor reflectance	30% Grey coloured carpet
Wall reflectance	70% Light coloured walls
Ceiling reflectance	80% White painted ceiling
Daylight Analysis Surface	Floor level
Overshadowing	Adjacent property, buildings, planters and shading devices
Sky	10,000 lux CIE Overcast Sky, where the ground ambient light level \approx 10,000 Lux
Exclusions	Robes, cupboards, toilets, bathrooms, joinery and circulation space have been excluded from the analysis.

2.2 Assessment criteria

Daylight performance is assessed against the planning requirements as set by the City of Monash and also the mandatory BCA compliance as outlined below.

2.2.1 BCA Compliance for Daylight (Mandatory)

The minimum, mandatory requirements for daylight set by the Building Council of Australia (BCA) are specified in Section F4.2 "Methods and Extent of Natural Lighting", stating:

(a) Required natural lighting must be provided by –

i. Windows, excluding roof lights, that –

A. Have an aggregate light transmitting area exclusive of framing members, glazing bars or other obstructions of not less than 10% of the floor area of the room; and

B. Are open to the sky or face a light court or other space open to the sky or an open veranda, car port or the like.

2.2.2 City of Monash

As part of Town Planning requirements, the project team is to demonstrate best practice daylight levels to the student accommodation rooms in the development, in line with the BESS rating tool, specifically;

- > A Daylight Factor (DF) of at least 0.5 for 90% of the Bedroom floor area for at least 80% of bedrooms

3. Results

The following section contains the results of the daylight study for the student bedroom component of the building, broken down by floors.

3.1 Ground Floor

Select ground floor apartment daylight factor renders are shown below in Figure 4.

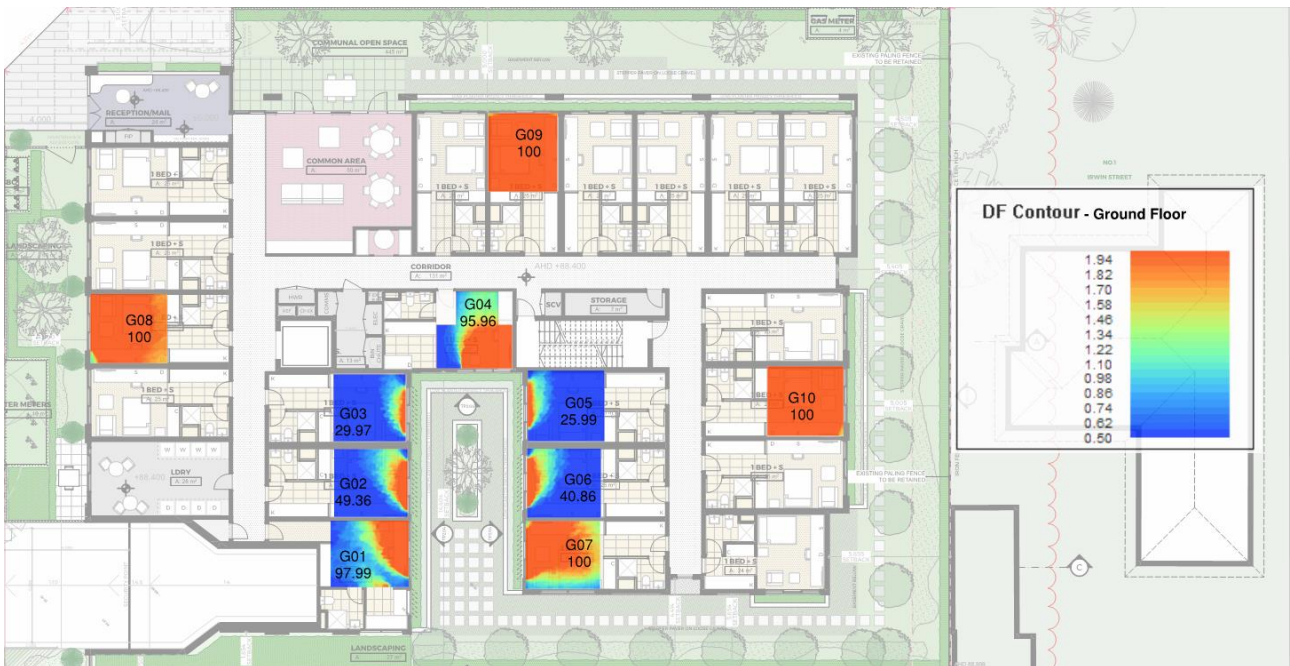


Figure 4: Daylight factor renders for the ground floor bedrooms.

The table below summarises the daylight results for the ground floor bedrooms of the development.

Based on the results of bedrooms G08, G09 and G10, it can be expected that all bedrooms on these façades orientations from Ground to Level 04 will achieve the required daylight factor minimum performance.

Table 2: Daylight modelling results for ground floor

Room Number	Room Type	Daylight Result DF>0.5
G01	Bedroom	97.99
G02	Bedroom	49.36
G03	Bedroom	29.97
G04	Bedroom	95.96
G05	Bedroom	25.99
G06	Bedroom	40.86

Room Number	Room Type	Daylight Result DF>0.5
G07	Bedroom	100.0
G08	Bedroom	100.0
G09	Bedroom	100.0
G10	Bedroom	100.0
Total	6 out of 10	

3.2 Level One

Select level one apartment daylight factor renders are shown below in Figure 5.

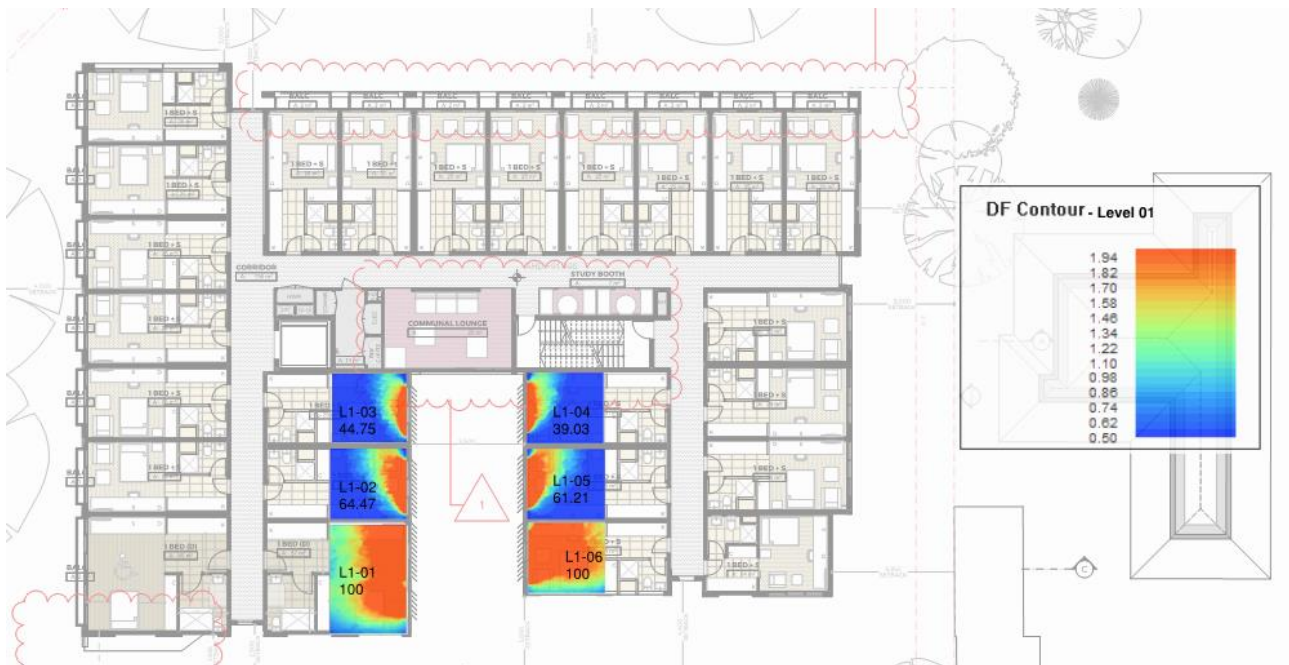


Figure 5: Daylight factor renders for the level one apartments

The table below summarises the daylight results for the level one apartments of the development.

Table 3: Daylight modelling results for level one

Room Number	Room Type	Daylight Result DF>0.5
L1- 01	Bedroom	100.0
L1- 02	Bedroom	64.47
L1- 03	Bedroom	44.75
L1- 04	Bedroom	39.03
L1- 05	Bedroom	61.21

Room Number	Room Type	Daylight Result DF>0.5
L1- 06	Bedroom	100.0
Total	2 out of 6	

3.3 Level Two

Select level two apartment daylight factor renders are shown below in Figure 6.

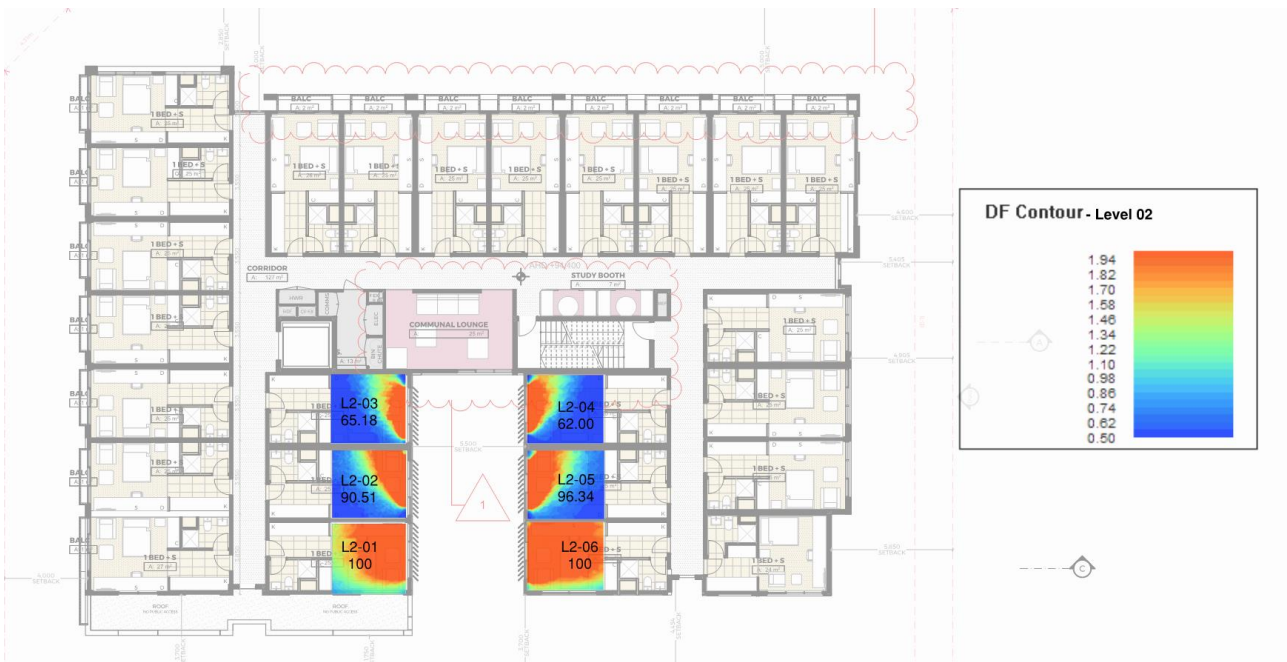


Figure 6: Daylight factor renders for the level two apartments

The table below summarises the daylight results for the level two apartments of the development.

Table 4: Daylight modelling results for level two

Room Number	Room Type	Daylight Result DF>0.5
L2- 01	Bedroom	100.0
L2- 02	Bedroom	90.51
L2- 03	Bedroom	65.18
L2- 04	Bedroom	62.00
L2- 05	Bedroom	96.34
L2- 06	Bedroom	100.0
Total	4 out of 6	

3.4 Level Three

Select level three apartment daylight factor renders are shown below in Figure 7.

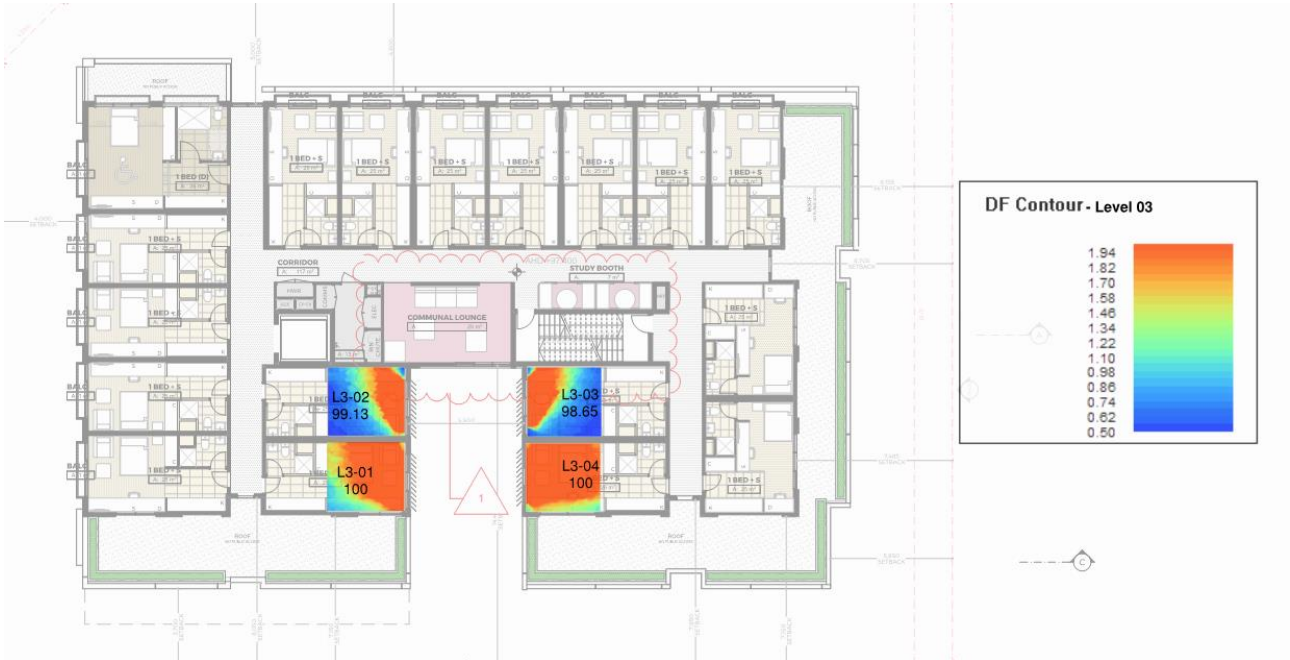


Figure 7: Daylight factor renders for the level three apartments

The table below summarises the daylight results for the level three apartments of the development.

Table 5: Daylight modelling results for level three

Room Number	Room Type	Daylight Result DF>0.5
L3- 01	Bedroom	100.0
L3- 02	Bedroom	99.13
L3- 03	Bedroom	98.65
L3- 04	Bedroom	100.0
Total	4 out of 4	

3.5 Level Four

Select level three apartment daylight factor renders are shown below in Figure 7.

Figure 8: Daylight factor renders for the level four apartments



Table 6: Daylight modelling results for level four

Room Number	Room Type	Daylight Result DF>0.5
L4- 01	Bedroom	100.0
L4- 02	Bedroom	100.0
Total	2 out of 2	

3.6 Summary

Based on the results of bedrooms G08, G09 and G10, it can be expected that all bedrooms on these façade orientations from Ground to Level 04 will achieve the required daylight factor minimum performance. Taking this assumption into account, daylight access to bedrooms can be expected to achieve excellent results, with approximately 90.2% of bedrooms meeting or exceeding the minimum daylight factor requirements.

Table 7: Summary of daylight results

Apartment Number	Bedrooms DF>0.5 for 90% of Floor Area
Total Rooms	102
Total Pass DF	92
90.2% (Min 80%)	

The results herein show compliance with the minimum daylight requirements for Bedrooms in accordance with the BESS guidelines.

The results are in-line with the City of Monash Planning Scheme for Town Planning requirements.

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