

To	Frasers Property	Date	17th September 2012
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From	Katie Fallowfield	Project No	SYD1122100
Project	Kensington Street Precinct	No. of pages	
Subject	Blocks 3B, 3C and 10 Residential daylight analysis	Copies	Alan Davis, WSP Built Ecology

Introduction

Frasers Property has appointed WSP Built Ecology to carry out a daylight analysis for Blocks 3B, 3C and 10 of the Kensington Street Precinct development. The purpose of this memo is to present the results of this analysis to determine the number of and percentage of bedrooms achieving at least two hours of solar access between 9:00am and 3:00pm at midwinter in Blocks 3B, 3C and 10.

This analysis has been carried out in response to a query from the Department of Planning on the number of bedrooms which would meet the intent of the SEPP 65 requirement for daylight access to living spaces. The specific request from the Department of Planning is as follows:

“the number of and percentage of bedrooms achieving at least 2 hours of solar access between 9am and 3pm at midwinter in Blocks 3B & 3C and Block 10”

Previous Investigations

It is important to note that this analysis has been carried out separately on the common rooms of the buildings to determine if the common areas meet the SEPP 65 daylight access requirement:

“living spaces achieve at least 3 hours of sunlight between the hours of 9am and 3pm in midwinter (or 2 hours in dense urban areas)”

The common rooms, which are located in the link between Blocks 3B and 3C and on level 2 of Block 10, are considered to be the living spaces for the studio apartments in these buildings. The studios are intended primarily as a sleeping space, with an en-suite and desk to add to the amenity of the room. Therefore it was important for the common areas to meet the daylight requirements of SEPP 65.

The previous study on the living spaces of 3B, 3C and 10 demonstrated that the lowest levels of the link achieved the minimum 2 hour daylight requirement in mid-winter associated with living spaces in dense urban areas, while the upper levels of the link achieved 3 hours or more. The common are in Block 10 achieved close to 4 hours of sunlight in mid-winter.

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Methodology Used

The buildings were modelled in using Ecotect Analysis, a daylight modelling tool. The software was developed by Autodesk in the USA and offers a wide range of simulation and building energy analysis functionality that can improve performance of existing buildings and new building designs.

Sample points were chosen mid pane of all bedroom windows on all levels. The number of direct sunlight hours between 9:00am and 3:00pm on 15th July was calculated by the software for the options above.

Sources of Information

The following sources of information were used to generate the thermal models:

- Architectural plan and elevation drawings from Tonkin Zulaikha Greer Architects dated 27th March 2012; and
- Revit model provided by Tonkin Zulaikha Greer Architects.

Results

The results are shown in the tables below.

Table 1: Number of bedrooms which achieve 2 hours or more of daylight

Bedrooms			
Block	3B&3C	10	Combined
Total	211	56	267
Number which receive ≥2 hours of sunlight	11	17	28
Percentage which receive ≥2 hours of sunlight	5.20%	30.40%	10.49%

We also conducted the analysis based on the number of apartments which achieve the 2 hours of sunlight. i.e. in this scenario we counted the studio apartments which achieve 2 hours of sunlight and the living spaces in cluster apartments which achieve 2 hours of sunlight. The results of this are shown in the table below.

Table 2: Number of apartments which achieve 2 hours or more of daylight

Apartments			
Block	3B&3C	10	Combined
Total	174	27	201
Number which receive ≥2 hours of sunlight	11	8	19
Percentage which receive ≥2 hours of sunlight	5.20%	29.60%	9.45%

Conclusion

The analysis was also conducted with a reduced shading depth on the façade. On the western elevation there is no design change that will increase the daylight availability to the facades due to the overshadowing from Block 2, 5 and 9. On the eastern façades, the number of rooms and apartments which achieve at least 2 hours of sunlight increase when the shading element is reduced by 150mm. This change would result in a total 30% of apartments achieving at least 2 hours of sunlight in midwinter. However, this does not meet the SEPP65 requirement of 70%.

Due to the site constraints in terms of plot size, orientation and surrounding buildings, it is not likely that a residential development could be designed in this location which would meet the daylight access requirement of SEPP65. However, as student accommodation, it was possible to optimise the design of the building and carefully plan the location of common areas to achieve the best result for daylight access in this location.

Should you have any questions, please don't hesitate to call us.

Regards



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