



309 KING STREET Newcastle

COUNCIL RFI - SOLAR

25 JUNE 2025



Fender Katsalidis acknowledges the Traditional Custodians of the land on which we operate, live and gather. We recognise their continuing connection to land, water and community. We pay respect to Elders past and present and extend that respect to all Aboriginal and Torres Strait Islander peoples today.

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Rob Mirams Partner

FK STATEMENT

CONCEPTUAL MASSING DIAGRAM

SOLAR ACCESS ANALYSIS ORIGINAL DA -LIVING AREA

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SOLAR ACCESS ANALYSIS ORIGINAL DA -BALCONY AREA

PART 1

SOLAR ANALYSIS METHODOLOGY



SOLAR ACCESS ANALYSIS MOD1 -LIVING AREA



SOLAR ACCESS ANALYSIS MOD 2 -LIVING AREA



SOLAR ACCESS **ANALYSIS MOD 1** -BALCONY AREA



SOLAR ACCESS **ANALYSIS MOD 2** -BALCONY AREA

FK STATEMENT

FK STATEMENT



Explanation of variance in Solar Analysis

In May 2025 when converting sun-eye view diagrams to REVIT in response to a Newcastle Council RFI dated 6th March 2025, it was discovered that the previously issued sun-eye view diagrams, created in ArchiCAD were not matching the new diagrams. A forensic review of the ArchiCAD files, dating back to 2018 and the original DA Approval, revealed that the previously documented sun-eye view was set up incorrectly, using the wrong solar angles for a site located in Newcastle. The resultant error is a 15 degree shift in the angle of the sun, rotating anti-clockwise around the site, therefore reducing the available morning sun by approximately 1 hour.

Why completing solar analysis using 3D modelling of solar projection is more accurate than visual assessment of sun eye view diagrams:

The ADG provides for two alternative ways to assess solar access. One method is to assess 'the quantity of direct sunlight within the living room or private open space can be demonstrated, where required, on a vertical plane using the view from the sun technique'. The second method is to assess if a minimum of 1m2 of direct sunlight, measured at 1m above floor level is provided within living rooms and private open spaces, this assessment is done by modelling actual sunlight projecting into apartments, onto the 1m plane.

While sun-eye view analysis provides a useful visual indication of solar access to building façades, it does not directly reflect the specific ADG requirement, which measures sunlight on a horizontal surface located 1 metre above the floor level within an apartment's living area. As such, there can be differences between the sunlight observed on vertical façades and the actual internal floor plane. To more precisely assess ADG compliance, we have modelled sunlight projection onto a 1m high plane within the living areas using a 3D model. This method has been used to evaluate the performance of the ERA project. We believe this is more reliable and aligns with ADG requirements compared to reliance solely on sun-eye diagrams. Relying on a visual assessment of sun eye diagrams may also be less accurate due to the resolution of the diagrams. Where PDF quality is not good, linework can become unclear when zooming into specific areas of the facade on a computer screen. This can lead to a less accurate result.

CONCEPTUAL MASSING DIAGRAM

EXPRESSION Smoothed cohesiveness



This diagram illustrates how architectural massing at concept design stage considered orientation to local streets, the relationship of the towers to street level experience, enhancement of amenity, protection from winds and solar access.

SOLAR ANALYSIS METHODOLOGY

SOLAR ANALYSIS METHODOLOGY

2	Sun Settings		? X	Location and Site X
	Solar Study	Settings		Location Site
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	◯ Single Day	Date :	21/06/2010	Internet Mapping Service Project Address:
	○ Multi-Day	Time :	11:00 AM	304 King Street. Newcastle. New South Wales 2300 Search
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	Image: A marked and and and and and and a			602044 (31.54 kilometres away)
		OK	Concel Apply	Use Daylight Savings time
		UK		OK Cancel Help

CONSTRAINS FROM THE CAD PROGRAM

The initial analysis was supported by a 3D sun-eye view, followed by a more detailed examination of daylight access within individual apartments, as illustrated in the accompanying diagrams.

Methodology:







3D SUN EYE VIEW

IN DEPTH APARTMENT ANALYSIS

FK has conducted a daylight analysis of the living rooms and private open spaces in accordance with the ADG requirements. The assessment was carried out using CAD software accurately set to the correct coordinates and winter solstice conditions. The objective was to demonstrate that a minimum of 1sqm of direct sunlight is received at 1 metre above floor level for at least 15 minutes.

SOLAR ACCESS ANALYSIS **ORIGINAL DA - LIVING AREA**











LEVEL 2

- 4 > 2 hrs Solar Access
- **11** 1 hr 45min Solar Access
- 1 1 hr 30min Solar Access
- 6 < 1 hr 30min Solar Access
- 2 0 hrs Solar Access



INDEPENDENT LIVING - 8

ORIGINAL DA

PROJECT Wests Newcastle

DRAWING TITLE SOLAR ACCESS DIAGRAMS -APARTMENTS

1:1000

4/06/2025

2 0 hrs Solar Access



- 1 1 hr 30min Solar Access
- < 1 hr 30min Solar Access 0
- 0 0 hrs Solar Access



0 0 hrs Solar Access



- 0 0 hrs Solar Access



APARTMENTS



INDEPENDENT LIVING - 10

- 0

- 0
- 0 0 hrs Solar Access



PROJECT



- **5** > 2 hrs Solar Access
- **3** 1 hr 45min Solar Access
- 0 1 hr 30min Solar Access
- < 1 hr 30min Solar Access 0
- 0 0 hrs Solar Access



DRAWING TITLE SOLAR ACCESS DIAGRAMS -

APARTMENTS

ORIGINAL DA

Wests Newcastle

PROJECT

36%

39%

3%

7%

14%

4/06/2025

SUMMARY

SOLAR ACCESS

89 > 2 hrs Solar Access

98 1 hr 45min Solar Access

8 1 hr 30min Solar Access

18 < 1 hr 30min Solar Access

35 0 hrs Solar Access

248

TOTAL YIELD





SOLAR ACCESS ANALYSIS MOD 1 - LIVING AREA

309 KING STREET, NEWCASTLE





LEVEL 6

TOWER A - 11 INDEPENDENT LIVING UNITS

- 6 > 2 hrs Solar Access
- 1 1hr 45min Solar Access
- 1 1hr 30min Solar Access
- **0** < 1hr 30min Solar Access
- **3** 0 hrs Solar Access

TOWER B - 11 RESIDENTIAL APARTMENTS

- 4 > 2 hrs Solar Access
- 0 1hr 45min Solar Access
- 5 1hr 30min Solar Access
- < 1hr 30min Solar Access 2
- 0 0 hrs Solar Access



0 0 hrs Solar Access





- **TOWER A 11 INDEPENDENT LIVING UNITS**
- 6 > 2 hrs Solar Access
- 1 1hr 45min Solar Access
- 1 1hr 30min Solar Access
- < 1hr 30min Solar Access 0
- **3** 0 hrs Solar Access

TOWER B - 11 RESIDENTIAL APARTMENTS

- 4 > 2 hrs Solar Access
- 0 1hr 45min Solar Access
- 5 1hr 30min Solar Access
- < 1hr 30min Solar Access 2
- **0** 0 hrs Solar Access





LEVEL 8

- **3** 0 hrs Solar Access

TOWER B - 11 RESIDENTIAL APARTMENTS

- 4 > 2 hrs Solar Access
- 1 1hr 45min Solar Access
- 5 1hr 30min Solar Access
- 1 < 1hr 30min Solar Access
- **0** 0 hrs Solar Access



LEVEL 11

- 0



(GWH)/00 BIM MODELS/SD_TP-DA/CENTRAL MODELS/22104 MOD1 Sola

DIAGRAMS

TOTALS SOLAR ACCESS **259** RESIDENTIAL APARTMENTS

46%	119	> 2 hrs Solar Access
4%	12	1hrs 45mins Solar Access
32%	82	1hrs 30mins Solar Access
5%	13	<1hrs 30mins Solar Access
13%	33	0 hrs Solar Access









SOLAR ACCESS ANALYSIS MOD 2 - LIVING AREA



TOWER A AND B SCHEMATIC DESIGN

03.03.2023



309 King Street Newcastle NSW 2302 RAWING TITLE



- 3 1 hr 30min Solar
- **0** < 1 hr 30min So
- 3 0 hrs Solar Acce

TOWER B - 11 RESIDENT

- 3 > 2 hr Solar Acc
- 1 1 hr 30min Solar

- SCHEMATIC DESIGN REVIEW FOR THIS PROJECT IS YET TO BE COMPLETED.
- DESIGN DEVELOPMENT REVIEW FOR THIS PROJECT IS YET TO BE COMPLETED.
- TENDER DOCUMENTATION REVIEW FOR THIS PROJECT IS YET TO BE COMPLETED. CONSTRUCTION DOCUMENTATION REVIEW FOR THIS DRAWING IS YET TO BE COMPLETED. IF THIS DRAWING IS STAMPED 'UNCONTROLLED COPY' THEN IT IS TO BE CONSIDERED A DRAFT, SUBJECT TO REVISION WITHOUT NOTICE

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WITH ALL OTHER CONTRACT DOCUMENTS. DO NOT SCALE DRAWINGS, USE FIGURED Y. SEEK CLARIFICATION OF INCONSISTENCES / CONFLICTS					\bigcirc	1
	DATE	CHECKED	PLOT DATE	JOB NO.	SCALE	
	21.03.2025	TF	05.06.2025	22104	1:1000@A3	F

PROPOSED SOLAR ACCESS DIAGRAMS

0 1 hr 45min Solar

- 5 1 hr 45min Solar
- **2** < 1 hr 30min So
- 0 0 hrs Solar Acces

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TIAL APARTMEI	NTS	LEGEND
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Access		1 hr 45min Solar Access
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	WWW.FKAUSTRALIA.COM L21, 259 GEORGE STREET NEW SOUTH WALES 2000 TELEPHONE: +61 2 8216 3 FENDER KATSALIDIS (AUS	I. SVDNEY AUSTRALIA 500 IT) PTY LTD ACN 092 943 032

ISSUE PURPOSE DEVELOPMENT APPLICATION

13

DA516







Newcastle NSW 2302 SCALE

1:1000@A3

JOB NO

22104

DRAWING TITLE PROPOSED SOLAR ACCESS DIAGRAMS

PM 17.05.2023

03.03.2023

TOWER A AND B SCHEMATIC DESIGN

MOD 2

TELEPHONE: +61 2 8216 3500 FENDER KATSALIDIS (AUST) PTY LTD AC ISSUE PURPOSE

14

DA517

DEVELOPMENT APPLICATION





SOLAR ACCESS **BALCONY AREA**

309 KING STREET, NEWCASTLE

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ANALYSIS ORIGINAL DA





1 0 hrs Solar Access



LEVEL 2

- **15** > 2 hrs Solar Access
- 1 1 hr 45min Solar Access
- 2 1 hr 30min Solar Access
- < 1 hr 30min Solar Access 6
- 0 0 hrs Solar Access







0 0 hrs Solar Access



0 hrs Solar Access 0





- 0

- 0
- 0
- **0** 0 hrs Solar Access



1 hr 30min Solar Access 0 < 1 hr 30min Solar Access 0 4 0 hrs Solar Access

TOWER RESIDENTIAL APARTMENTS - 10

1 hr 45min Solar Access

10 > 2 hrs Solar Access

INDEPENDENT LIVING - 10

6 > 2 hrs Solar Access

LEVEL 9

0

- 0 1 hr 45min Solar Access
- 1 hr 30min Solar Access 0
- < 1 hr 30min Solar Access 0

SiMcloud: (kaeprd bind) - BiMcloud 17121 - 305 King Street (Wesis). Newcastle IN MODELS/SD_TP-DA/CENTR.

0 0 hrs Solar Access

ORIGINAL DA

Wests Newcastle

SOLAR ACCESS DIAGRAMS -BALCONIES

1:1000





4/06/2025

PRELIMINARY FOR DISCUSSIO

77%

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1%

2%

•(••••*

6%

13%

...

ORIGINAL DA

ndbim01 - BIMcloud/17121 - 309 King Street (Weste), Newcastle/00 BIM MODELS/SD TP-DA/CENTRA

DRAWING TITLE SOLAR ACCESS DIAGRAMS -BALCONIES

1:1000

SUMMARY

SOLAR ACCESS

- **191** > 2 hrs Solar Access
- **5** 1 hr 45min Solar Access
- 7 1 hr 30min Solar Access

14 < 1 hr 30min Solar Access

31 O hrs Solar Access

TOTAL YIELD 248

NOTE: PERCENTAGES HAVE BEEN ROUNDED TO NEAREST WHOLE NUMBER, THUS TOTAL **RESULTS IN 99%**

LEGEND

Ν

- > 2 hrs Solar Access
- 1 hr 45min Solar Access
- 1 hr 30min Solar Access
- < 1 hr 30min Solar Access
- 0 hrs Solar Access







MOD 1 - BALCONY AREA

SOLAR ACCESS ANALYSIS



L	F(G	FI	M	Г





ACROSS BOTH TOWERS SOLAR ACCESS 259 RESIDENTIAL +INDEPENDENT UNITS

220	> 2 hrs Solar Access
11	1 hr 45min Solar Access
03	1 hr 30min Solar Access
07	< 1 hr 30min Solar Access
18	0 hrs Solar Access







MOD 2 - BALCONY AREA

SOLAR ACCESS ANALYSIS





PROPOSED SOLAR ACCESS DIAGRAMS 04.06.2025 22104 1:1000@A3

FK

04.06.2025

FK

DEVELOPMENT APPLICATION

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- 9 > 2 hr Solar Access
- 2 1 hr 45min Solar Access
- **0** 1 hr 30min Solar Access
- 0 < 1 hr 30min Solar Access
- 0 0 hrs Solar Access



MOD 2



0 0 hrs Solar Access

QUALITY ASSURANCE (FK IS A CERTIFIED COMPANY TO ISO 9001-2015)

SCHEMATIC DESIGN REVIEW FOR THIS PROJECT IS YET TO BE COMPLETED

DESIGN DEVELOPMENT REVIEW FOR THIS PROJECT IS YET TO BE COMPLETED.

CONSTRUCTION DOCUMENTATION REVIEW FOR THIS DRAWING IS YET TO BE COMPLETE WING IS STAMPED 'UNCONTROLLED COPY' THEN IT IS TO BE CONSIDERED A

IDER DOCUMENTATION REVIEW FOR THIS PROJECT IS YET TO BE COMPLETED

THIS PROJECT IS SUBJECT TO THE FK QUALITY ASSUBANCE SYSTEM



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LEVEL 8

- PODIUM A 10 RESIDENTIAL APARTMENTS
- 7 > 2 hr Solar Access
- **0** 1 hr 45min Solar Access
- 0 1 hr 30min Solar Access
- **0** < 1 hr 30min Solar Access
- **3** 0 hrs Solar Access

TOWER B - 11 RESIDENTIAL APARTMENTS

- 10 > 2 hr Solar Access 1 1 hr 45min Solar Access
- 0 1 hr 30min Solar Access
- **0** < 1 hr 30min Solar Access
- 0 0 hrs Solar Access



LEVEL 11

TOWER A - 10 RESIDENTIAL APARTMENTS 7 > 2 hr Solar Access

- **0** 1 hr 45min Solar Access
- 0 1 hr 30min Solar Access
- **0** < 1 hr 30min Solar Access
- **3** 0 hrs Solar Access

TOWER B - 11 RESIDENTIAL APARTMENTS

- 11 > 2 hr Solar Access 0 1 hr 45min Solar Access
- 0 1 hr 30min Solar Access
- 0
 - < 1 hr 30min Solar Access
- 0 0 hrs Solar Access



FENDER KATSALIDIS

WWW.FKAUSTRALIA.COM L21, 259 GEORGE STREET, SYDNEY NEW SOUTH WALES 2000 AUSTRALIA TELEPHONE: +61 2 8216 3500 FENDER KATSALIDIS (AUST) PTY LTD ACN 092 94

ISSUE PURPOSE DEVELOPMENT APPLICATION





04.06.2025

FK

04.06.2025

22104 1:1000@A3

PROPOSED SOLAR ACCESS DIAGRAMS

01

DA518-A

DEVELOPMENT APPLICATION