

ENERGY SOLUTIONS

51 Bay Street
Port Melbourne, VIC, 3207
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21st December 2011

PROJECT

PROPOSED MIXED USE DEVELOPMENT
PORTSIDE WHARF BUILDING 5, PORTSIDE WHARF
HAMILTON, QLD 4007

CLIENT

BROOKFIELD RESIDENTIAL PROPERTIES
LEVEL 1, FLARE BUILDING, 39 HERCULES ST
HAMILTON, QLD 4007

PLANS AND DOCUMENTS

referred to in the ULDA

APPROVAL dated 17 / 4 / 2012

SECTION J RESIDENTIAL ENERGY COMPLIANCE REPORT FOR DEVELOPMENT APPLICATION

RATER: JOHN ARMSBY

REG: ABSA 60841

RATING DATE: 21/12/2011

FINAL REPORT

REV -

Please refer to the attached summary of projected verification of building performance using FirstRate5 to analyse a large range of the overall unit types, including screen captures and report of the lowest performing unit.

Yours faithfully,

John Armsby
ENERGY SOLUTIONS
Architect/Energy Consultant
Registered Energy Rater ABSA 60841
Architect - ARBV 17198

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FINAL REPORT

PORTSIDE WHARF BUILDING 5, PORTSIDE WHARF, HAMILTON DEVELOPMENT APPLICATION FEATURES REPORT

SUMMARY

The advice from the building surveyor is that the project is being assessed under BCA 2005.

This requires that the residential units achieve a 3 star minimum with a 3.5 star average rating.

To achieve this our findings indicate that a low-e green tinted glass type will be acceptable throughout from an energy rating perspective. No double glazing appears necessary. We have used generic low-e glass units.

UNITS

A large cross section of units have been rated in FirstRate5 (version 5.1.7). These units achieved a minimum star rating of 3.0 stars with an average of at least 3.5 stars as required by the BCA Building Code of Australia (QLD). We believe the average rating will be closer to 5.0 stars.

UNIT CONSTRUCTION

Wall Construction

- External - Concrete panel with furring channel and added insulation value of R1.5 minimum.
- Curtain Wall Spandrel Glass - Assumed to have an added insulation value of R1.5 minimum.
- Internal Party Walls - Structural concrete walls and added insulation value of R1.0 minimum.

Ceilings

- Between Floors - Concrete slab and no added insulation.
- At level 14 - Concrete slab and added insulation value of R2.5 minimum.

Floors

- All Floors - Concrete slab and no added insulation. Carpet throughout excluding all wet areas which are tiled.

Windows

Generic Aluminium Improved glazing suites with single glazed Low 'E' glass was used for the rating and the glazing must perform at this standard or above.

A number of glass types will work but may need to be tested and separate advice issued if required. A generic system was used for the preliminary rating in place of a G. James or similar which, if selected would likely give superior thermal performance. Use of generic suite offers a greater flexibility in glass choices at a later date. The glazing used has the follow thermal properties.

Generic 11 - (GGG-05-004a)

Glass - U-value: 3.6 Shading Coeff: 0.6 Solar Heat Gain Factor: 0.52

Frame - U-value: 9.3 Vision Area: 0.84

Total Glazing System - U-value: 4.32 Solar Heat Gain Factor: 0.47

Please refer to the attached summary of projected verification of building performance using FirstRate5 to analyse a large range of the overall unit types.

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FINAL REPORT

THERMAL PERFORMANCE ASSESSMENT

REV -

ENERGY RATING PREPARED BY JOHN ARMSBY, ENERGY RATER ABSA 60841

PORTSIDE WHARF BUILDING 5, PORTSIDE WHARF, HAMILTON

21-Dec-11

BROOKFIELD RESIDENTIAL PROPERTIES

COTTEE PARKER ARCHITECTS

LEVEL	UNIT NO.	TYPE	STAR RATING	LIKE UNIT	FLOOR AVERAGE	COMMENTS
LEVEL G						
	G.01	-	3.3	RATED		R1.5 added to external/carpark walls
					TOTAL	3.3
					AVERAGE	3.3
LEVEL 1						
	01.01	-	3.4	RATED		R1.5 added to external/carpark walls
	01.02	-	3.4	01.01		R1.5 added to external/carpark walls
					TOTAL	6.8
					AVERAGE	3.4
LEVEL 3						
	03.01	2.F	3.9	RATED		
	03.02	1.A	5.9	03.03		
	03.03	1.A	5.9	RATED		
	03.04	1.A	5.9	03.03		
	03.05	1.1A	5.4	RATED		
	03.06	2.G	3.6	RATED		
	03.07	2.H	5.2	RATED		
	03.08	2.C	5.2	03.07		
	03.09	1.A1	4.8	03.10		
	03.10	1.A1	4.8	RATED		
					TOTAL	50.6
					AVERAGE	5.1
LEVEL 4						
	04.01	2.F	3.7	RATED		
	04.02	1.A	6.0	04.03		
	04.03	1.A	6.0	RATED		
	04.04	1.A	6.0	04.03		
	04.05	1.1A	5.3	RATED		
	04.06	2.G	3.7	RATED		
	04.07	2.H	5.9	RATED		
	04.08	2.C	5.9	04.07		
	04.09	1.A	5.2	04.10		
	04.10	1.A	5.2	RATED		
					TOTAL	52.9
					AVERAGE	5.3
LEVEL 5						
	05.01	2.F	4.0	RATED		
	05.02	1.A	5.7	05.03		

05.03	1.A	5.7	RATED				
05.04	1.A	5.7	05.03				
05.05	1.1A	5.2	RATED				
05.06	2.G	3.9	RATED				
05.07	2.H	5.9	RATED				
05.08	2.C	5.9	05.07				
05.09	1.A	5.3	05.10				
05.10	1.A	5.3	RATED				
				TOTAL	52.6		
				AVERAGE	5.3		

LEVEL 6

06.01	2.F	3.7	04.01				
06.02	1.A	6.0	04.03				
06.03	1.A	6.0	04.03				
06.04	1.A	6.0	04.03				
06.05	1.1A	5.3	04.05				
06.06	2.G	3.7	04.06				
06.07	2.H	5.9	04.07				
06.08	2.C	5.9	04.07				
06.09	1.A	5.2	04.10				
06.10	1.A	5.2	04.10				
				TOTAL	52.9		
				AVERAGE	5.3		

LEVEL 7

07.01	2.F	4.0	05.01				
07.02	1.A	5.7	05.03				
07.03	1.A	5.7	05.03				
07.04	1.A	5.7	05.03				
07.05	1.1A	5.2	05.05				
07.06	2.G	3.9	05.06				
07.07	2.H	5.9	05.07				
07.08	2.C	5.9	05.07				
07.09	1.A	5.3	05.10				
07.10	1.A	5.3	05.10				
				TOTAL	52.6		
				AVERAGE	5.3		

LEVEL 8

08.01	2.F	3.7	04.01				
08.02	1.A	6.0	04.03				
08.03	1.A	6.0	04.03				
08.04	1.A	6.0	04.03				
08.05	1.1A	5.3	04.05				
08.06	2.G	3.7	04.06				
08.07	2.H	5.9	04.07				
08.08	2.C	5.9	04.07				
08.09	1.A	5.2	04.10				
08.10	1.A	5.2	04.10				
				TOTAL	52.9		
				AVERAGE	5.3		

LEVEL 9

09.01	2.F	4.0	05.01				
09.02	1.A	5.7	05.03				

09.03	1.A	5.7	05.03
09.04	1.A	5.7	05.03
09.05	1.1A	5.2	05.05
09.06	2.G	3.9	05.06
09.07	2.H	5.9	05.07
09.08	2.C	5.9	05.07
09.09	1.A	5.3	05.10
09.10	1.A	5.3	05.10

TOTAL	52.6
AVERAGE	5.3

LEVEL 10

10.01	2.F	3.7	04.01
10.02	1.A	6.0	04.03
10.03	1.A	6.0	04.03
10.04	1.A	6.0	04.03
10.05	1.1A	5.3	04.05
10.06	2.G	3.7	04.06
10.07	2.H	5.9	04.07
10.08	2.C	5.9	04.07
10.09	1.A	5.2	04.10
10.10	1.A	5.2	04.10

TOTAL	52.9
AVERAGE	5.3

LEVEL 11

11.01	2.F	4.0	05.01
11.02	1.A	5.7	05.03
11.03	1.A	5.7	05.03
11.04	1.A	5.7	05.03
11.05	1.1A	5.2	05.05
11.06	2.G	3.9	05.06
11.07	2.H	5.9	05.07
11.08	2.C	5.9	05.07
11.09	1.A	5.3	05.10
11.10	1.A	5.3	05.10

TOTAL	52.6
AVERAGE	5.3

LEVEL 12

12.01	2.F	3.7	04.01
12.02	1.A	6.0	04.03
12.03	1.A	6.0	04.03
12.04	1.A	6.0	04.03
12.05	1.1A	5.3	04.05
12.06	2.G	3.7	04.06
12.07	2.H	5.9	04.07
12.08	2.C	5.9	04.07
12.09	1.A	5.2	04.10
12.10	1.A	5.2	04.10

TOTAL	52.9
AVERAGE	5.3

LEVEL 13

13.01	2.F	3.1	RATED
13.02	1.A	5.7	05.03

13.03	1.A	5.7	05.03
13.04	1.A	5.7	05.03
13.05	1.1A	5.2	05.05
13.06	2.G	3.9	05.06
13.07	2.H	5.9	05.07
13.08	2.C	5.9	05.07
13.09	1.A	5.3	05.10
13.10	1.A	5.3	05.10

TOTAL 51.7
AVERAGE 5.2

LEVEL 14

14.01	2.F	3.1	RATED	R2.5 added bulk insulation to ceiling
14.02	1.A	6.8	14.03	R2.5 added bulk insulation to ceiling
14.03	1.A	6.8	RATED	R2.5 added bulk insulation to ceiling
14.04	1.A	6.8	14.03	R2.5 added bulk insulation to ceiling
14.05	1.1A	6.0	RATED	R2.5 added bulk insulation to ceiling
14.06	2.G	4.1	RATED	R2.5 added bulk insulation to ceiling
14.07	2.H	5.2	RATED	R2.5 added bulk insulation to ceiling
14.08	2.C	5.2	14.07	R2.5 added bulk insulation to ceiling
14.09	1.A	5.4	14.10	R2.5 added bulk insulation to ceiling
14.10	1.A	5.4	RATED	R2.5 added bulk insulation to ceiling

TOTAL 54.8
AVERAGE 5.5

BUILDING SUMMARY

123 UNITS

TOTAL 642.1
AVERAGE 5.2

Typically all units unless noted otherwise - Internal walls, floors and ceilings are uninsulated and windows to be aluminium improved with single glazed low-e green glass. External walls to include R1.5 added bulk insulation

Note: Party walls separating two units have R1.0 insulation.

SOFTWARE USED - FirstRate5 v5.1.7

Summary Report



FirstRate: 5.1.7



Engine: 2.13

Rating 3.2 stars



Mode New House Mode

Energy*	Total	89.9 MJ/m2
	Heating	22.5 MJ/m2
	Cooling	67.4 MJ/m2

* Area correction applied as per NatHERS software protocol

Areas	Net Conditioned Floor Area (NCFA)	73.4 m2
	Unconditioned Room Area	0.0 m2
	Garage Area	0.0 m2

Climate 10 Brisbane AMO

Site Exposure suburban

Client Name Brookfield Multiplex

Rated Address Portside Wharf Building 5 Hamilton 4007

Accredited Rater John Armsby ABSA 60841

Date

Reference

Comment

The energy values quoted are for comparison purposes only. They are not a prediction of actual energy use.

This rating only applies to the floor plan, construction details, orientation and climate as submitted and included in the attached stamped plans.

Changes to any of these could affect the rating.

FirstRate5 cannot model slab edge insulation.

FirstRate Feature Report

Zones

Zone	Area (m ²)	Conditioning Type	Conditioned
BATH	4.0	otherDayCond	Y
Bedroom 7	11.2	bedroom	Y
MASTER	19.3	bedroom	Y
Kitchen 9	40.0	kitchen	Y

Walls

Type	Insulation	Num Foil Layers	Foil Type	Area (m ²)
Conc125: Concrete 125mm	1.0	0	None	53.1
FC: Fibro Clad Framed	1.5	0	None	63.4
Conc125: Concrete 125mm	0.0	0	None	6.2

Floors

Type	Insulation	Ventilation	Area (m ²)
SuspSlab	0.0	encl	73.4

Roofs/Ceilings

Type	Insulation	Area (m ²)
Slab:Slab - Suspended Slab	2.5	73.4

Windows

Type	U-Value	SHGC	Area (m ²)
Generic 11: Aluminium improved single-glazed: low-e glass: U = 4.32: SHGC = 0.47	4.32	0.47	42.98

Window Directions

Direction	Area (m ²)
W	23.7
NNE	11.8

SSW

7.4

Air leakage

Item	Sealed	Unsealed
Chimneys	0	0
Exhaust Fans	3	0
Wall Vents		0
Down Lights		0
Unflued Gas Heaters		0

Zone Energy Loads

Zone	Heating (MJ/m2)	Total Heating (MJ)	Cooling (MJ/m2)	Total Cooling (MJ)
BATH	33.4	133.5	38.8	155.3
Kitchen 9	32.3	1290.1	80.1	3202.7
MASTER	17.8	343.1	57.7	1111.7
Bedroom 7	12.4	139.3	110.2	1235.3

Feature Report 21-12-2011 13:05:15 Ver:5.1.7 Engine Ver:2.13 Accredited Rater:John Armsby ABSA 60841

Screen Capture of Unit 14.01 - The lowest rating unit in the project



Additional ratings and information available on request

