

ENERGY SOLUTIONS

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21st December 2011

PROJECT

PROPOSED MIXED USE DEVELOPMENT

PORTSIDE WHARF BUILDING 2, PORTSIDE WHARF
HAMILTON, QLD 4007

CLIENT

BROOKFIELD RESIDENTIAL PROPERTIES

LEVEL 1, FLARE BUILDING, 39 HERCULES ST
HAMILTON, QLD 4007

**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 2, 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 supertoned tinted glass type will be acceptable throughout from an energy rating perspective. No double glazing appears necessary. We have used generic supertoned 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 in excess of 5.0 stars.

UNIT CONSTRUCTION

Wall Construction

- External - Concrete panel with no added insulation.
- External Spandrel Glass - added insulation value of R1.5 minimum.
- Unit 14.04 - above 3.0m use external spandrel glass with added insulation value of R1.5 minimum.
- Internal Party Walls - added insulation value of R1.0 minimum (required for acoustic separation).

Ceilings

- Between Floors - Plasterboard Ceiling to Concrete slab with no added insulation.
- At level 14 (all units excluding 14.04) - Concrete slab, 3.5m ceiling height throughout and added insulation value of R3.0 minimum.
- At level 14 (unit 14.04) - Concrete slab, 3.0m ceiling height throughout (to accommodate pool area) and added insulation value of R4.0 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 supertoned 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 07 - (GGG-05-030a)

Glass - U-value: 5.85 Shading Coeff: 0.67 Solar Heat Gain Factor: 0.58

Frame - U-value: 9.3 Vision Area: 0.84

Total Glazing System - U-value: 6.29 Solar Heat Gain Factor: 0.52

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

Yours faithfully,

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

FINAL REPORT

THERMAL PERFORMANCE ASSESSMENT

REV -

ENERGY RATING PREPARED BY JOHN ARMSBY, ENERGY RATER ABSA 60841

PORTSIDE WHARF BUILDING 2, PORTSIDE WHARF, HAMILTON
BROOKFIELD RESIDENTIAL PROPERTIES
NOEL ROBINSON ARCHITECTURE

21-Dec-11

LEVEL	UNIT NO.	TYPE	STAR RATING	LIKE UNIT	FLOOR AVERAGE	COMMENTS
LEVEL G						
	G.02	-	5.7	G.09		
	G.03	-	5.7	G.09		
	G.04	-	5.7	G.09		
	G.05	-	5.9	G.06		
	G.06	-	5.9	RATED		
	G.07	-	5.7	RATED		
	G.08	-	5.8	RATED		
	G.09	-	5.7	RATED		
	G.10	-	3.6	G.12		
	G.11	-	3.6	G.12		
	G.12	-	3.6	RATED		
	G.13	-	3.4	RATED		
	G.14	-	5.5	RATED		
	G.15	-	3.3	RATED		(Red denotes worst two ratings in project)
					TOTAL	69.1
					AVERAGE	4.9
LEVEL 1						
	01.01	-	5.4	RATED		
	01.13	-	7.6	02.10		
	01.14	-	7.9	02.11		
	01.15	-	7.0	RATED		
					TOTAL	27.9
					AVERAGE	7.0
LEVEL 2						
	02.01	-	5.5	RATED		
	02.02	-	5.7	RATED		
	02.03	-	4.6	RATED		
	02.04	-	6.2	RATED		
	02.05	-	6.2	RATED		
	02.06	-	4.7	RATED		
	02.07	-	5.0	RATED		
	02.08	-	5.0	RATED		
	02.09	-	6.5	RATED		
	02.10	-	7.6	RATED		
	02.11	-	7.9	RATED		
	02.12	-	8.0	RATED		
					TOTAL	72.9
					AVERAGE	6.1

LEVEL 3

03.01	5.5	02.01
03.02	5.7	02.02
03.03	4.6	02.03
03.04	6.2	02.04
03.05	6.2	02.05
03.06	4.7	02.06
03.07	5.0	02.07
03.08	5.0	02.08
03.09	6.5	02.09
03.10	7.6	02.10
03.11	7.9	02.11
03.12	8.0	02.12

TOTAL	72.9
AVERAGE	6.1

LEVEL 4

04.01	5.5	02.01
04.02	5.7	02.02
04.03	4.6	02.03
04.04	6.2	02.04
04.05	6.2	02.05
04.06	4.7	02.06
04.07	5.0	02.07
04.08	5.0	02.08
04.09	6.5	02.09
04.10	7.6	02.10
04.11	7.9	02.11
04.12	8.0	02.12

TOTAL	72.9
AVERAGE	6.1

LEVEL 5

05.01	5.5	02.01
05.02	5.7	02.02
05.03	4.6	02.03
05.04	6.2	02.04
05.05	6.2	02.05
05.06	4.7	02.06
05.07	5.0	02.07
05.08	5.0	02.08
05.09	6.5	02.09
05.10	7.6	02.10
05.11	7.9	02.11
05.12	8.0	02.12

TOTAL	72.9
AVERAGE	6.1

LEVEL 6

06.01	5.5	02.01
06.02	5.7	02.02
06.03	4.6	02.03
06.04	6.2	02.04
06.05	6.2	02.05
06.06	4.7	02.06
06.07	5.0	02.07

06.08	5.0	02.08
06.09	6.5	02.09
06.10	7.6	02.10
06.11	7.9	02.11
06.12	8.0	02.12

TOTAL	72.9
AVERAGE	6.1

LEVEL 7

07.01	5.5	02.01
07.02	5.7	02.02
07.03	4.6	02.03
07.04	6.2	02.04
07.05	6.2	02.05
07.06	4.7	02.06
07.07	5.0	02.07
07.08	5.0	02.08
07.09	6.5	02.09
07.10	7.6	02.10
07.11	7.9	02.11
07.12	8.0	02.12

TOTAL	72.9
AVERAGE	6.1

LEVEL 8

08.01	5.5	02.01
08.02	5.7	02.02
08.03	4.6	02.03
08.04	6.2	02.04
08.05	6.2	02.05
08.06	4.7	02.06
08.07	5.0	02.07
08.08	5.0	02.08
08.09	6.5	02.09
08.10	7.6	02.10
08.11	7.9	02.11
08.12	8.0	02.12

TOTAL	72.9
AVERAGE	6.1

LEVEL 9

09.01	5.5	02.01
09.02	5.7	02.02
09.03	4.6	02.03
09.04	6.2	02.04
09.05	6.2	02.05
09.06	4.7	02.06
09.07	5.0	02.07
09.08	5.0	02.08
09.09	6.5	02.09
09.10	7.6	02.10
09.11	7.9	02.11
09.12	8.0	02.12

TOTAL	72.9
AVERAGE	6.1

LEVEL 10

10.01	5.5	02.01
10.02	5.7	02.02
10.03	4.6	02.03
10.04	6.2	02.04
10.05	6.2	02.05
10.06	4.7	02.06
10.07	5.0	02.07
10.08	5.0	02.08
10.09	6.5	02.09
10.10	7.6	02.10
10.11	7.9	02.11
10.12	8.0	02.12

TOTAL	72.9
AVERAGE	6.1

LEVEL 11

11.01	5.5	02.01
11.02	5.7	02.02
11.03	4.6	02.03
11.04	6.2	02.04
11.05	6.2	02.05
11.06	4.7	02.06
11.07	5.0	02.07
11.08	5.0	02.08
11.09	6.5	02.09
11.10	7.6	02.10
11.11	7.9	02.11
11.12	8.0	02.12

TOTAL	72.9
AVERAGE	6.1

LEVEL 12

12.01	5.5	02.01
12.02	5.7	02.02
12.03	4.6	02.03
12.04	6.2	02.04
12.05	6.2	02.05
12.06	4.7	02.06
12.07	5.0	02.07
12.08	5.0	02.08
12.09	6.5	02.09
12.10	7.6	02.10
12.11	7.9	02.11
12.12	8.0	02.12

TOTAL	72.9
AVERAGE	6.1

LEVEL 13

13.01	5.5	02.01
13.02	5.7	02.02
13.03	4.6	02.03
13.04	6.2	02.04
13.05	6.2	02.05
13.06	4.7	02.06
13.07	5.0	02.07

13.08	5.0	02.08
13.09	6.5	02.09
13.10	7.6	02.10
13.11	7.9	02.11
13.12	8.0	02.12

TOTAL	72.9
AVERAGE	6.1

LEVEL 14

14.01	4.9	RATED	R3.0 Bulk insulation to 3.7m ceiling
14.02	3.7	RATED	R3.0 Bulk insulation to 3.7m ceiling
14.03	4.5	RATED	R3.0 Bulk insulation to 3.7m ceiling
14.04	3.0	RATED	3.0m ceiling throughout due to pool with R4.0 added
14.05	5.4	RATED	R3.0 Bulk insulation to 3.7m ceiling

TOTAL	21.5
AVERAGE	4.3

BUILDING SUMMARY 167 UNITS

TOTAL	993.3
AVERAGE	5.9

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

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

Note: **Two lowest rating units highlighted in red.**

Note: Grey background identifies units that have been rated

SOFTWARE USED - FirstRate5 v5.1.7

FirstRate Feature Report

Zones

Zone	Area (m ²)	Conditioning Type	Conditioned
Bedroom 1	19.2	bedroom	Y
Bedroom 2	10.8	bedroom	Y
Other 3	2.9	otherDayCond	Y
Other 4	5.3	otherDayCond	Y
Other 5	9.9	otherDayCond	Y
Other 6	3.1	otherDayCond	Y
Other 7	3.6	otherDayCond	Y
Bedroom 8	32.7	bedroom	Y
Kitchen 9	106.2	kitchen	Y

Walls

Type	Insulation	Num Foil Layers	Foil Type	Area (m ²)
Conc125: Concrete 125mm	1.0	0	None	105.4
FC: Fibro Clad Framed	1.5	0	None	99.6
Conc125: Concrete 125mm	0.0	0	None	3.3

Floors

Type	Insulation	Ventilation	Area (m ²)
SuspSlab	0.0	encl	190.9

Roofs/Ceilings

Type	Insulation	Area (m ²)
SlabExt:Slab - Suspended Slab - External Insul	4.0	190.9

Windows

Type	U-Value	SHGC	Area (m ²)
Generic 07: Aluminium improved single-glazed: supertoned glass: U = 6.29: SHGC = 0.52	6.29	0.52	88.47

Window Directions

Direction	Area (m ²)
W	66.7
S	21.8

Air leakage

Item	Sealed	Unsealed
Chimneys	0	0
Exhaust Fans	6	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)
Bedroom 2	15.9	172.0	72.0	781.3
Bedroom 1	8.4	162.0	40.6	780.1
Kitchen 9	33.6	3573.2	100.9	10711.8
Other 7	52.4	187.3	30.5	108.9
Other 6	18.3	56.3	14.0	43.2
Other 5	13.3	132.1	0.0	0.0
Bedroom 8	16.3	534.0	11.4	373.6
Other 4	22.7	120.4	6.0	32.1
Other 3	44.6	130.8	40.0	117.1

Summary Report



FirstRate: 5.1.7



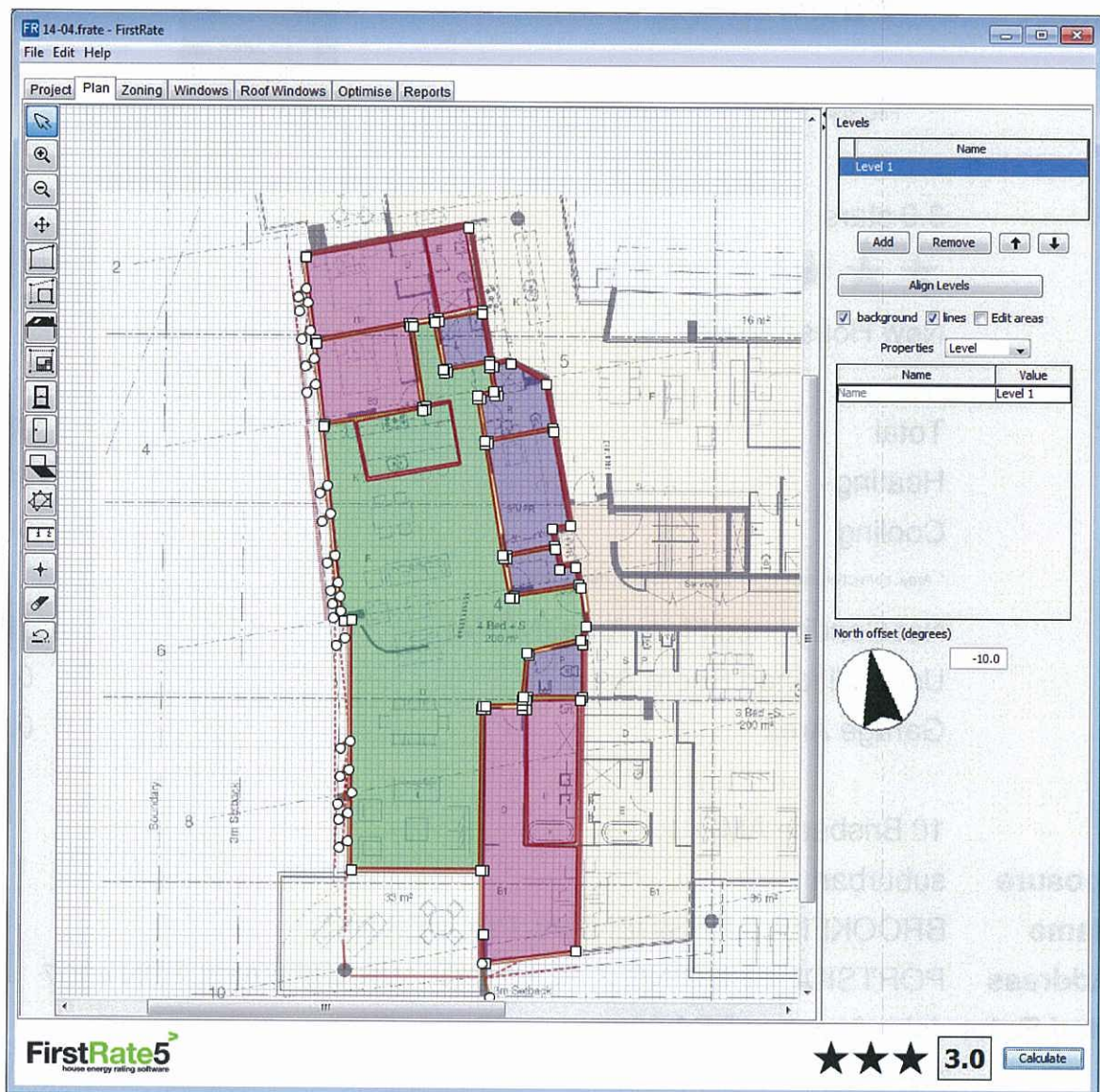
Engine: 2.13

Rating	3.0 stars ★ ★ ★	
Mode	New House Mode	
Energy*	Total	95.9 MJ/m2
	Heating	26.6 MJ/m2
	Cooling	69.3 MJ/m2
	* Area correction applied as per NatHERS software protocol	
Areas	Net Conditioned Floor Area (NCFA)	190.9 m2
	Unconditioned Room Area	0.0 m2
	Garage Area	0.0 m2
Climate	10 Brisbane AMO	
Site Exposure	suburban	
Client Name	BROOKFIELD RESIDENTIAL PROPERTIES	
Rated Address	PORTSIDE BUILDING 2, PORTSIDE WHARF HAMILTON 4007	
Accredited Rater	John Armsby ABSA 60841	
Date	19-12-2011	
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.

Summary 21-12-2011 11:55:30 Ver:5.1.7 Engine Ver:2.13 Accredited Rater:John Armsby ABSA 60841

Screen Capture of Unit 14.04 - The lowest rating unit in the project



Additional ratings and information available on request