

PLANS AND DOCUMENTS
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DEVELOPMENT APPROVAL

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Preliminary House Energy Rating Report

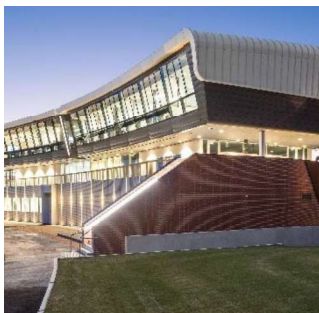
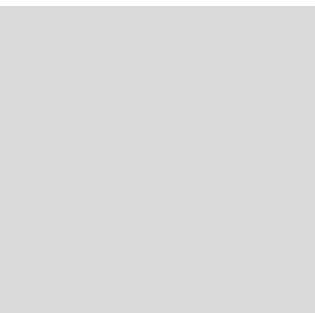
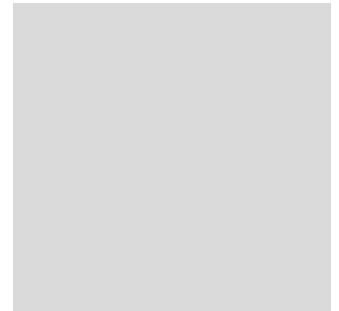
Hamilton St Residential Project

99-101+ 103-105 Hamilton St Redland Bay

Prepared for: Glenn Bliesner Design

Project No.: BR210376

Revision No.: A



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REVISIONS

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1 Executive Summary

1.1 Introduction

This project is a new residential unit to be located in Redland Bay, 4165. This report describes the preliminary house energy rating assessment undertaken on the apartments in this project.

1.2 Queensland Development Code MP 4.1 – Sustainable Buildings

The project consists of shared common spaces which fall under building classification Class 2 of the National Construction Code (NCC) and require to comply with the Queensland Development Code MP 4.1-Sustainable Buildings (QDC 4.1) which override the relevant NCC2019 provisions for Class 2 buildings. Under the QDC 4.1, Class 2 sole-occupancy units are to achieve the following in Climate Zone 10 Brisbane:

- Collectively an average rating of not less than 5 stars and,
- A minimum individual rating of not less than 4 stars, including and not exceeding an individual heating load limit as mentioned in Schedule 5, Table B, as shown below.

Table B – Separate heating and cooling load limits for a sole-occupancy unit in a class 2 building in particular locations in Queensland*

Column 1 <i>NatHERS climate zone</i>	Column 2 <i>Floor type</i>	Column 3 <i>Heating load limit (MJ/m².annum)</i>					Column 4 <i>Cooling load limit (MJ/m².annum)</i>				
		6 stars	5.5 stars	5 stars	4.5 stars	4 stars	6 stars	5.5 stars	5 stars	4.5 stars	4 stars
7	Concrete	17	37	59	71	82	87	96	108	N/A	N/A
9	Concrete	48	51	62	65	72	44	61	71	83	96
10	Concrete	25	35	40	45	55	32	43	48	52	60
19	Concrete	61	67	84	89	99	59	82	95	101	103
50	Concrete	57	66	76	86	96	47	50	71	74	86

* Separate heating and cooling load limits only apply to a sole-occupancy unit in a class 2 building if the building is located in a NatHERS climate zone mentioned above.

1.3 Project Specific Requirements

The project is aiming to achieve an average NatHERS rating of 7 stars or greater for the development to meet Green Star Design & As Built v1.3 submission guidelines for residential energy and thermal comfort requirements.

1.4 Assessment Parameters

Assessments have been undertaken to provide an indication of the building fabric performance factors that will likely be required to meet the NCC requirements. The following parameters were used in the assessment:

1. The FirstRate5 software has been used to determine the results in this report.
2. The location of the property falls into Climate Zone 6 according to Schedule 3 Definitions - Table 2 Climate Zones for Thermal Design.
3. The NatHERS climate zone used for evaluation is "10 Brisbane AMO"
4. Exposure determined as "Suburban/Exposed"
5. The orientation of property is as per drawing set provided

1.5 Sources of Information

The following sources of information used to generate the report were based on architectural drawings provided by Glenn Bliesner Design, for Consultant Coordination, dated 15/10/2021.

- | | |
|----------------------------|-----------------------------|
| ■ Basement Plans | Drawing Number: B-B01 |
| ■ Ground Floor Plan | Drawing Number: B-L00 |
| ■ Level 01-04 typical Plan | Drawing Number: B-L01 |
| ■ Roof Plan | Drawing Number: B-L05 |
| ■ Elevations | Drawing Number: E-01 – E04 |
| ■ Sections | Drawing Number: D-A01 & A02 |

2 Section J Class 2 - NatHERS Assessment

2.1 House Energy Rating Results

Table 1 indicates, the individual dwelling NatHERS rating results that are achieved using the general construction assumptions as detailed in Table 2. Please note that the heating and cooling loads have not exceeded the QDC 4.1 heating and cooling load requirements in Schedule 5, Table B.

TABLE 1: INDIVIDUAL DWELLING RESULTS – APARTMENTS

Floor	Unit Type	NatHERS Star Rating	Heating Energy (MJ/m ²)	Cooling Energy (MJ/m ²)	Total Energy (MJ/m ²)	Net Conditioned Floor Area (m ²)	Unconditioned Area (m ²)
1	D	4.9	13	43	56	106.8	3.3
1	C	5.8	6.7	38.1	44.8	161.3	3.4
1	A	8.2	7.4	16.2	23.6	166.4	6.8
1	B	8.2	7.3	16	23.3	170.1	7.8
2	G	7.4	4.8	25.9	30.7	166.2	7.3
2	H	4.8	6.2	51.2	57.4	156.3	3.4
2	J	7.1	2.9	30.4	33.3	106.8	3.3
2	E	8.1	1.9	22.4	24.3	166.4	6.8
2	F	7.9	2.2	22.9	25.1	165.5	6.8
3	G	8.4	2.1	19.8	21.9	166.2	7.3
3	H	4.9	6.7	50.1	56.8	156.3	3.4
3	J	7.1	5.8	27.1	32.9	106.8	3.3
3	E	8.1	1.9	22.4	24.3	166.4	6.8
3	F	8.2	2.2	21.5	23.7	165.5	6.8
4	G	8.7	3.8	16	19.8	166.2	7.3
4	H	5.3	7.7	43.6	51.3	156.3	3.4
4	J	8.1	7.9	16.6	24.5	106.8	3.3
4	E	8.9	3.2	14.7	17.9	166.4	6.8
4	F	8.8	4.2	14.2	18.4	165.5	6.8
5	G	7.1	18.9	14.5	33.4	166.2	7.3
5	H	5.2	22.3	30.2	52.5	156.3	3.4
5	J	7.1	14.5	18.9	33.4	106.8	3.3
5	E	8.2	8.2	15.1	23.3	166.4	6.8
5	F	8.1	9.6	14.9	24.5	165.5	6.8
Average Rating/Load:		7.2	8.0	24.4			
Minimum Rating/Load:		4.8	22.4	51.2			

2.2 Assumptions of Current Design

Table 2 below outline the assumptions that were used in the rating of the apartments within the development as per the current architectural drawings. Note that the insulation requirements given below are added values and not total system values.

TABLE 2: CONSTRUCTION ASSUMPTIONS

Building Fabric	Apartment
Ground Floor Construction above Carpark	Suspended Slab/ R2.0 insulation
Floor Construction between Apartments	Concrete slab/Floor lining
Floor Coverings	Floating Timber (Kitchen/Living/Dining/Entrance) Tiles (Pwd, Bath, Ensuite, Ldy) Carpet (Bedrooms, Passage, Study, Stairs)
Roof Construction	Metal Roof (Light)/ R5.0 ceiling insulation/ Ceiling lining
Wall Construction (External)	Concrete/R2.7 insulation/Plasterboard
Wall Construction (To Corridors, Lifts & Stairs)	Concrete/R2.7 insulation/Plasterboard
Wall Construction (Between Dwellings)	Party Wall Construction/R4.0 Insulation
Wall Construction (Internal within the dwelling)	Lightweight Construction/Uninsulated
Glazing	<u>Sliding/Fixed – Tinted Single Glazing in frame</u> Total U-Value (inc. Frame) = 5.0, SHGC (inc. frame) = 0.32 All windows sealed and weather stripped
Ceiling Fans (2 to all Living Spaces & 1 to all Bedrooms)	1200mm Diameter Ceiling fans
Entry Doors	Sealed and weather stripped
Exhaust Fans	Kitchen, Bath, Pwd, Ens, Ldy - sealed and weather stripped
Internal lighting	LED downlights sealed

Note: The following assumptions were used in the rating of the apartments in conjunction with the current architectural drawings. Changes to any of the listed parameters may affect the performance and invalidate the energy ratings detailed in this report.

2.3 Recommendations

As can be seen in the star rating results in Table 1, the development in its current design scheme meets the QDC 4.1 requirements for house energy ratings provided that suitable glazing and insulation levels are specified throughout the development as per the construction details provided in Table 2. Note that any reduction in insulation levels or changes to glazing values would require reassessment of the ratings before proceeding further.

Note: The values listed above are whole window system values (as per WERS), **not** glazing only.

There has been an addition of 1200mm diameter ceiling fans to the bedrooms and living rooms to aid in reducing cooling loads for compliance with the heating and cooling loads in Schedule 5, QDC 4.1. Without it, increased insulation values or higher spec glazing such as double glazing or thermally broken frames may be required for compliance.

2.4 Final FirstRate5 Calculations and Certification

If required for Building Permit, final FirstRate5 calculations and NatHERS certificates will be issued for each dwelling as well as a Group Certificate.

In order to complete the final assessment, the following items will be required:

- 1) Complete set of Construction Issue drawings
- 2) Drawings showing wall, floor and roof build-ups including details (R-values) of insulation being provided and their locations
- 3) Lighting or electrical plans indicating locations of penetrations
- 4) Window schedules detailing type and dimensions of all windows.
- 5) Elevations and sections of building(s).
- 6) Details of actual glazing being installed (if available). This will include the following:
 - a. Brand/manufacture
 - b. Glazing product/build up (i.e. 6mm thick glazing/12mm air gap/6mm thick glazing etc...)
 - c. Glazing overall U-value including frame. If multiple types of glazing are proposed, all values are required.
 - d. Glazing SHGC value(s).