



BASIX REPORT

FIVEWAYS CROWS NEST

WF803-07F02(REV0)- BASIX REPORT

AUGUST 29, 2024

Prepared for:

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INTRODUCTION

This report presents the results of a detailed BASIX assessment of the various residential dwellings within the proposed development known as Fiveways, located at Crows Nest. The assessment is carried out using online BASIX and BERS Pro Thermal Performance assessment tool. This assessment is based on the architectural drawings prepared by Turner, received August 2024.

BASIX ASSESSMENT METHODOLOGY

A BASIX assessment is split into three sections; Water, Thermal Comfort and Energy. Each section measures the efficiency of the development in these areas. For the Water and Energy sections, the development is given a score based on the efficiency. BASIX sets a minimum score in these areas that the development must satisfy. The Thermal Performance section of the BASIX assessment requires a BERS Pro simulation to be undertaken. BASIX sets requirements on the maximum heating and cooling loads for each residential apartment of the development. The results of this are rated in BASIX as either a pass or fail.

2.1 Water Usage

The water usage of the development is measured based on the area of gardens/lawn and the number and efficiency of permanent fixtures within the development (such as showerheads, taps and toilets). The development is given a rating, with BASIX requiring a minimum rating of 40% to pass this section.

2.2 Thermal Comfort

The thermal comfort of the development is measured using the BERS Pro Thermal Performance assessment tool. This gives an expected level of energy consumption (expressed in Mega Joules used per square metre per annum) for the heating and cooling loads.

The thermal comfort of the development can be improved by using higher performance building materials (such as performance glazing) and/or insulation materials. BASIX sets a maximum heating and cooling load that the development is to achieve. This is given as a weighted average heating and cooling load for the entire development, and for each individual dwelling to achieve.

2.3 Energy Usage

The energy section of the BASIX assessment measures the energy efficiency of the development based on the efficiency of the fixed appliances to be used. This includes the hot water system, air-conditioning system, exhaust fans, lighting and the cook top/oven. If a pool is to be included in the proposal then the efficiency measure of the pool heater and the pool pump is also required. The development is given a rating, with BASIX requiring a minimum rating of 63% to pass this section.

RESULTS OF THE BASIX ASSESSMENT

3.1 Water

The minimum target score in BASIX to achieve water usage compliance is 40%. The minimum score is achieved through the inclusion of the following;

3.1.1 Central Systems & Common Areas

- A rainwater tank with a volume capacity of least 20,000L capacity is to be included. Water is to be provided from at least 150m² of the roof area. Water from the tank is to be used for all public landscaping (total area of 2760m²) within the development site.
- The fire sprinkler test water for the car park and building fire sprinkler systems are not to be contained in a closed system.
- The common area toilets are to have a water efficiency rating of at least 4.0 Stars.
- The common area taps are to have a water efficiency rating of at least 4.0 Stars.

3.1.2 Dwellings

- All showerheads within each residential dwelling is to have a water efficiency rating of at least 4.0 Stars (>6but <=7.5L/min).
- All toilets within each residential dwelling is to have a water efficiency rating of at least 4.0 Stars.
- All kitchen taps within each residential dwelling is to have a water efficiency rating of at least 5.0 Stars.
- All bathroom taps within each residential dwelling is to have a water efficiency rating of at least 5.0 Stars.
- Clothes washer units are to be installed within each residential dwelling. The Clothes washer units are to have a water efficiency rating of at least 3.0 stars.
- Dishwasher units are to be installed within each residential dwelling. The dishwasher units are to have a water efficiency rating of at least 4.0 stars.

3.2 Thermal Comfort

The BERS Pro assessments take into account the following fundamental aspects of energy efficient design:

- The orientation and size of the walls.
- The location, proportion and type of windows and doors, and any internal or external coverings to them.
- The materials and colours of the exterior of the building.
- Internal floor, wall and ceiling materials.
- Cross ventilation.
- Provision of any insulation in walls, roof or ceiling.
- Overshadowing to walls and windows from eaves, other parts of the development and neighbours.
- The topography and climate of the area around the proposed development.

The climate zone selected for analysis was Climate Zone 56. In BASIX, the required weighted averaged maximum heating and cooling loads of the entire proposed development are 28.1 MJ/m²/year for heating and 20.0 MJ/m²/year for cooling and for each individual dwelling a maximum heating and cooling load of 34.4 MJ/m²/year for heating and 21.4 MJ/m²/year for cooling. The required heating and cooling loads for the individual residential dwelling are indicated in Table 3. Note that the overall weighted average heating and cooling loads are significantly harder to achieve than the individual unit requirements.

3.2.1 Dwelling Construction Materials and Initial Results

The following construction materials were initially selected for the assessment. Note that the materials described are not prescriptive. The construction materials used on the subject development should be selected to have similar performance characteristics as the ones detailed below so as not to affect the overall thermal performance rating of each apartment. The U-value and Solar Heat Gain Coefficient (SHGC) for the glazed systems is also indicated.

The wall construction of each residential dwelling is indicated in Table 1a below:

Table 1a - Wall Systems for each Residential Dwelling

Dwelling Envelope Wall	Wall Construction
External (the wall between outdoor environment and the dwelling)	Brick Veneer and Metal Cladding
Party (the wall between dwelling and the dwelling)	Hebel Panel
Enclosed Lobby (the wall between enclosed lobby and the dwelling)	Hebel Panel
Outdoor Lobby (the wall between outdoor lobby and the dwelling)	Hebel Panel
Staircore/Lift/Shfts (the wall between staircore/lift/shafts and the dwelling)	Concrete
Carpark (between carpark and the dwelling)	Concrete
To unconditioned spaces such as plant, garbage, service rooms etc. (the wall between the unconditioned space and the dwelling)	Concrete
Internal (the wall internal walls within the dwelling)	Plasterboard on Stud

- The floor coverings will be following:
 - Timber to the living areas
 - Carpets to the bedrooms
 - Tiles to the kitchen
 - Tiles to the wet areas
 - Timber to the hallways
 - Timber to the study rooms
 - Carpets to the home office
 - Tiles to the other internal areas (walk in pantries etc.)
- The floors will be concrete slabs.
- The ceilings will be concrete.
- The roof will be waterproof membrane.
- Draught seals are to be installed to the windows and doors.
- Sealed exhaust fans are assumed in the kitchen and wet areas.

- Ceiling penetrations due to recessed luminaires has been assumed at a rate of 1 per 2.5m² as the lighting/ceiling plan is yet to be determined and is not indicated on the drawing set. A reassessment may be undertaken at a later stage once the lighting/ceiling plan is finalised.
- Skylights are to be single glazed set within an aluminium or timber frame.
- The glazing systems within the residential dwellings are split into two groups; Group A and Group B based on the system type indicated in Table 1b below.
 - Note that for thermal modelling purposes, glazed systems that have a combination of Group A and Group B system types, the group system type that accounts for the majority of the glazed system area will be selected. If they are equal in area then the Group A system type will be selected. However, for specification they are based on the Group type.

Table 1b - Glazed System Grouping

Group A	Group B
Awning Window	Double Hung Window
Bifold Door	Fixed Window
Bifold Window	Louvre Window
Entry Door	Sliding Window
Casement Window	Sliding door
French Door	Stacker door
Tilt'n'Turn Window	
Hinged Door	

The result of the analysis, indicated in Table 3, indicate that several of the residential dwellings within the proposed development will not satisfy the individual thermal requirements of BASIX. Hence treatment is required to some of the residential dwellings of the development.

3.2.2 Results with Treatments

Further analysis of the proposed development resulted in some required treatments to achieve the BASIX requirements for thermal performance. The required treatments are listed in Table 2 below:

Table 2 - Required Treatments

Unit Number	Glazing Thermal Specification (See Table 1b for group information)	Additional Wall Insulation in the dwelling envelope wall (to outdoor air, lobby, stair/ liftcore, enclosed unconditioned spaces (plant, shafts etc.). (R-value)	Additional Ceiling Insulation to areas with outdoor air or enclosed unconditioned spaces above. (R-value)	Additional Floor Insulation to areas above outdoor air/ carpark/ or enclosed unconditioned spaces. (R-value)	Additional Treatments
301	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
302	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
303	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
401	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	2.5	-
402	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	2	-
403	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	2	-
404	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	2	-
405	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	2	-
406	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	2	-
407	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	2	-
408	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	2	-
409	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	2	-
410	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
411	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
412	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
501	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
502	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
503	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
504	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
505	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-

Unit Number	Glazing Thermal Specification (See Table 1b for group information)	Additional Wall Insulation in the dwelling envelope wall (to outdoor air, lobby, stair/ liftcore, enclosed unconditioned spaces (plant, shafts etc.)). (R-value)	Additional Ceiling Insulation to areas with outdoor air or enclosed unconditioned spaces above. (R-value)	Additional Floor Insulation to areas above outdoor air/ carpark/ or enclosed unconditioned spaces. (R-value)	Additional Treatments
506	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
507	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
508	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
509	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
510	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
511	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
512	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
601	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
602	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
603	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
604	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
605	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
606	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
607	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
608	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
609	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
610	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
611	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
612	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
701	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
702	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
703	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
704	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-

Unit Number	Glazing Thermal Specification (See Table 1b for group information)	Additional Wall Insulation in the dwelling envelope wall (to outdoor air, lobby, stair/ liftcore, enclosed unconditioned spaces (plant, shafts etc.)). (R-value)	Additional Ceiling Insulation to areas with outdoor air or enclosed unconditioned spaces above. (R-value)	Additional Floor Insulation to areas above outdoor air/ carpark/ or enclosed unconditioned spaces. (R-value)	Additional Treatments
705	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
706	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
707	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
708	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
709	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
710	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
711	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
712	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
801	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
802	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
803	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
804	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
805	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
806	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
807	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
808	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
809	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
810	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
811	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
812	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
901	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
902	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	2	-
903	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-

Unit Number	Glazing Thermal Specification (See Table 1b for group information)	Additional Wall Insulation in the dwelling envelope wall (to outdoor air, lobby, stair/ liftcore, enclosed unconditioned spaces (plant, shafts etc.)). (R-value)	Additional Ceiling Insulation to areas with outdoor air or enclosed unconditioned spaces above. (R-value)	Additional Floor Insulation to areas above outdoor air/ carpark/ or enclosed unconditioned spaces. (R-value)	Additional Treatments
904	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
905	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
906	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
907	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
908	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
909	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
910	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
911	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1001	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1002	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1003	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1004	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1005	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1006	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1007	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1008	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1009	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1010	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1011	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1101	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1102	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1103	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1104	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-

Unit Number	Glazing Thermal Specification (See Table 1b for group information)	Additional Wall Insulation in the dwelling envelope wall (to outdoor air, lobby, stair/ liftcore, enclosed unconditioned spaces (plant, shafts etc.)). (R-value)	Additional Ceiling Insulation to areas with outdoor air or enclosed unconditioned spaces above. (R-value)	Additional Floor Insulation to areas above outdoor air/ carpark/ or enclosed unconditioned spaces. (R-value)	Additional Treatments
1105	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1106	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1107	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1108	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1109	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1110	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1111	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1201	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1202	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1203	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1204	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	2.5	-	-
1205	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	2.5	-	-
1206	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1207	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1208	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1209	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	2.5	-	-
1210	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1211	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	2.5	-	-
1301	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1302	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1303	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1304	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	2	-
1305	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-

Unit Number	Glazing Thermal Specification (See Table 1b for group information)	Additional Wall Insulation in the dwelling envelope wall (to outdoor air, lobby, stair/ liftcore, enclosed unconditioned spaces (plant, shafts etc.)). (R-value)	Additional Ceiling Insulation to areas with outdoor air or enclosed unconditioned spaces above. (R-value)	Additional Floor Insulation to areas above outdoor air/ carpark/ or enclosed unconditioned spaces. (R-value)	Additional Treatments
1306	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1307	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1308	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1309	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1401	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1402	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1403	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1404	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1405	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1406	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1407	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1408	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1409	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1501	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1502	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1503	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1504	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1505	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1506	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1507	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1508	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1509	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1601	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-

Unit Number	Glazing Thermal Specification (See Table 1b for group information)	Additional Wall Insulation in the dwelling envelope wall (to outdoor air, lobby, stair/ liftcore, enclosed unconditioned spaces (plant, shafts etc.)). (R-value)	Additional Ceiling Insulation to areas with outdoor air or enclosed unconditioned spaces above. (R-value)	Additional Floor Insulation to areas above outdoor air/ carpark/ or enclosed unconditioned spaces. (R-value)	Additional Treatments
1602	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1603	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1604	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1605	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1606	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1607	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1608	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1609	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1701	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1702	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1703	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1704	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1705	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1706	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1707	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1708	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1709	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1801	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1802	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1803	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1804	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1805	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1806	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-

Unit Number	Glazing Thermal Specification (See Table 1b for group information)	Additional Wall Insulation in the dwelling envelope wall (to outdoor air, lobby, stair/ liftcore, enclosed unconditioned spaces (plant, shafts etc.)). (R-value)	Additional Ceiling Insulation to areas with outdoor air or enclosed unconditioned spaces above. (R-value)	Additional Floor Insulation to areas above outdoor air/ carpark/ or enclosed unconditioned spaces. (R-value)	Additional Treatments
1807	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1808	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1809	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1901	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1902	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1903	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1904	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1905	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1906	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1907	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1908	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
1909	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
2001	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
2002	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
2003	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
2004	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
2005	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
2006	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
2007	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
2008	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
2009	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	-	-	-
2101	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	3	-	-
2102	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	2.5	-	-

Unit Number	Glazing Thermal Specification (See Table 1b for group information)	Additional Wall Insulation in the dwelling envelope wall (to outdoor air, lobby, stair/ liftcore, enclosed unconditioned spaces (plant, shafts etc.)). (R-value)	Additional Ceiling Insulation to areas with outdoor air or enclosed unconditioned spaces above. (R-value)	Additional Floor Insulation to areas above outdoor air/ carpark/ or enclosed unconditioned spaces. (R-value)	Additional Treatments
2103	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	2.5	-	-
2104	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	2.5	-	-
2105	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	2.5	-	-
2106	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	2.5	-	-
2107	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	2.5	-	-
2108	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	2.5	-	-
2109	Group A: U-value = 2.00, SHGC = 0.25 Group B: U-value = 2.00, SHGC = 0.31	2	2.5	-	-

With these treatments in place the weighted average maximum heating and cooling loads are 19.6 MJ/m²/year for heating and 9.1 MJ/m²/year for cooling.

The BASIX requirements for the weighted averaged maximum heating and cooling loads of the entire proposed development are 28.1 MJ/m²/year for heating and 20.0 MJ/m²/year for cooling. Hence, with the required treatments listed above, the proposed development will satisfy the thermal performance requirements of BASIX.

Note the required additional insulation requirements in Table 2 above are valid for the current design as indicated in the architectural drawings and the envelope wall construction types of the residential dwellings as indicated in Table 1a (i.e. dwelling wall to outdoor air, lobby, unconditioned spaces such as stair/liftcore, neighbour etc.).

If there are changes to the dwelling envelope wall construction; e.g. the wall type is changed to another material or a wall is comprised of more than one wall types, then the required additional wall insulation requirement in Table 2 above may also vary. This is due to different wall construction types having different inherent R-values. The thermal modelling software combines the inherent R-value of the wall construction type for each wall (as indicated in Table 1a) and the associated wall insulation (as indicated in Table 2) to form an overall "Envelope Wall Total R-value" for each wall. Thus, if a different wall construction type that has a lower inherent R-value is used in lieu of those in Table 1a, then the wall insulation requirement would be increased to achieve a similar "Envelope Wall Total R-value". Note the opposite is also true for wall constructions with "higher" inherent wall construction R-values can result in a decrease in the wall insulation requirement.

The glazing types selected for the windows of the proposed development should at least satisfy the required performance data listed in this report. Reducing the amount of glazing in each unit is expected to significantly increase the thermal performance of each unit. Higher performing glass types than those listed in this report are also acceptable. That is, alternative glazing systems or specifications may be used if their U value is equivalent or lower, and the SHGC value is less than +/-10% than the U and SHGC values of the product specified in the table above as per the BASIX Thermal Comfort Protocol.

Table 3 - BERS Thermal Performance Results

Unit Number	BASIX Requirements (MJ/m2/year)			Final Results (MJ/m2/year) (with treatments)		
	Heating	Cooling	Total	Heating	Cooling	Total
301	34.4	21.4	38.0	9.9	12.0	21.9
302	34.4	21.4	38.0	7.3	14.7	22.0
303	34.4	21.4	38.0	9.1	14.6	23.7
401	34.4	21.4	38.0	28.7	8.5	37.2
402	34.4	21.4	38.0	21.5	10.4	31.9
403	34.4	21.4	38.0	21.5	10.4	31.9
404	34.4	21.4	38.0	27.6	7.2	34.8
405	34.4	21.4	38.0	20.2	12.2	32.4
406	34.4	21.4	38.0	19.2	5.3	24.5
407	34.4	21.4	38.0	14.0	5.8	19.8
408	34.4	21.4	38.0	15.6	6.5	22.1
409	34.4	21.4	38.0	11.9	6.9	18.8
410	34.4	21.4	38.0	16.1	9.1	25.2
411	34.4	21.4	38.0	13.5	10.4	23.9
412	34.4	21.4	38.0	18.1	10.8	28.9
501	34.4	21.4	38.0	28.2	8.5	36.7
502	34.4	21.4	38.0	20.3	11.7	32.0
503	34.4	21.4	38.0	20.3	11.7	32.0
504	34.4	21.4	38.0	24.8	8.8	33.6
505	34.4	21.4	38.0	21.0	13.2	34.2
506	34.4	21.4	38.0	16.4	6.2	22.6
507	34.4	21.4	38.0	13.6	6.7	20.3
508	34.4	21.4	38.0	14.6	7.3	21.9
509	34.4	21.4	38.0	10.9	8.4	19.3
510	34.4	21.4	38.0	18.4	9.1	27.5
511	34.4	21.4	38.0	15.6	10.0	25.6
512	34.4	21.4	38.0	20.5	10.2	30.7
601	34.4	21.4	38.0	28.5	9.0	37.5
602	34.4	21.4	38.0	20.6	11.8	32.4
603	34.4	21.4	38.0	20.6	11.8	32.4
604	34.4	21.4	38.0	25.1	8.8	33.9
605	34.4	21.4	38.0	21.3	13.3	34.6

Unit Number	BASIX Requirements (MJ/m2/year)			Final Results (MJ/m2/year) (with treatments)		
	Heating	Cooling	Total	Heating	Cooling	Total
606	34.4	21.4	38.0	16.7	6.1	22.8
607	34.4	21.4	38.0	13.7	6.9	20.6
608	34.4	21.4	38.0	14.8	7.4	22.2
609	34.4	21.4	38.0	11.0	8.4	19.4
610	34.4	21.4	38.0	18.6	8.8	27.4
611	34.4	21.4	38.0	15.8	9.9	25.7
612	34.4	21.4	38.0	20.8	10.4	31.2
701	34.4	21.4	38.0	28.8	8.9	37.7
702	34.4	21.4	38.0	20.9	11.5	32.4
703	34.4	21.4	38.0	20.9	11.5	32.4
704	34.4	21.4	38.0	25.4	8.8	34.2
705	34.4	21.4	38.0	21.4	13.3	34.7
706	34.4	21.4	38.0	17.0	6.0	23.0
707	34.4	21.4	38.0	13.9	7.0	20.9
708	34.4	21.4	38.0	15.0	7.4	22.4
709	34.4	21.4	38.0	11.2	8.2	19.4
710	34.4	21.4	38.0	18.9	8.9	27.8
711	34.4	21.4	38.0	16.1	10.1	26.2
712	34.4	21.4	38.0	21.1	10.5	31.6
801	34.4	21.4	38.0	29.1	8.5	37.6
802	34.4	21.4	38.0	21.4	11.8	33.2
803	34.4	21.4	38.0	21.2	11.6	32.8
804	34.4	21.4	38.0	25.7	8.8	34.5
805	34.4	21.4	38.0	21.7	13.2	34.9
806	34.4	21.4	38.0	17.3	5.8	23.1
807	34.4	21.4	38.0	14.1	7.0	21.1
808	34.4	21.4	38.0	15.2	7.2	22.4
809	34.4	21.4	38.0	11.3	8.3	19.6
810	34.4	21.4	38.0	19.2	8.9	28.1
811	34.4	21.4	38.0	16.3	10.0	26.3
812	34.4	21.4	38.0	21.3	10.3	31.6
901	34.4	21.4	38.0	27.3	8.8	36.1
902	34.4	21.4	38.0	22.8	11.6	34.4
903	34.4	21.4	38.0	26.0	8.8	34.8

Unit Number	BASIX Requirements (MJ/m2/year)			Final Results (MJ/m2/year) (with treatments)		
	Heating	Cooling	Total	Heating	Cooling	Total
904	34.4	21.4	38.0	21.8	13.3	35.1
905	34.4	21.4	38.0	17.6	5.8	23.4
906	34.4	21.4	38.0	14.3	7.0	21.3
907	34.4	21.4	38.0	15.3	7.4	22.7
908	34.4	21.4	38.0	11.5	8.2	19.7
909	34.4	21.4	38.0	19.4	8.8	28.2
910	34.4	21.4	38.0	16.6	9.9	26.5
911	34.4	21.4	38.0	21.6	10.2	31.8
1001	34.4	21.4	38.0	27.5	9.1	36.6
1002	34.4	21.4	38.0	22.2	11.9	34.1
1003	34.4	21.4	38.0	26.2	8.8	35.0
1004	34.4	21.4	38.0	22.0	13.3	35.3
1005	34.4	21.4	38.0	17.6	5.7	23.3
1006	34.4	21.4	38.0	14.4	7.1	21.5
1007	34.4	21.4	38.0	15.4	7.3	22.7
1008	34.4	21.4	38.0	11.6	8.2	19.8
1009	34.4	21.4	38.0	19.5	8.7	28.2
1010	34.4	21.4	38.0	16.7	9.9	26.6
1011	34.4	21.4	38.0	21.8	10.3	32.1
1101	34.4	21.4	38.0	27.8	8.9	36.7
1102	34.4	21.4	38.0	22.4	11.8	34.2
1103	34.4	21.4	38.0	26.5	8.8	35.3
1104	34.4	21.4	38.0	22.2	12.9	35.1
1105	34.4	21.4	38.0	18.1	5.9	24.0
1106	34.4	21.4	38.0	14.6	7.1	21.7
1107	34.4	21.4	38.0	15.6	7.3	22.9
1108	34.4	21.4	38.0	11.6	8.3	19.9
1109	34.4	21.4	38.0	19.8	8.7	28.5
1110	34.4	21.4	38.0	17.0	10.0	27.0
1111	34.4	21.4	38.0	22.0	10.2	32.2
1201	34.4	21.4	38.0	27.9	9.1	37.0
1202	34.4	21.4	38.0	22.5	11.9	34.4
1203	34.4	21.4	38.0	26.6	8.9	35.5
1204	34.4	21.4	38.0	21.1	13.3	34.4

Unit Number	BASIX Requirements (MJ/m2/year)			Final Results (MJ/m2/year) (with treatments)		
	Heating	Cooling	Total	Heating	Cooling	Total
1205	34.4	21.4	38.0	19.5	5.4	24.9
1206	34.4	21.4	38.0	14.7	7.0	21.7
1207	34.4	21.4	38.0	15.7	7.3	23.0
1208	34.4	21.4	38.0	11.7	8.3	20.0
1209	34.4	21.4	38.0	20.3	8.3	28.6
1210	34.4	21.4	38.0	16.4	9.8	26.2
1211	34.4	21.4	38.0	22.2	10.1	32.3
1301	34.4	21.4	38.0	28.1	9.4	37.5
1302	34.4	21.4	38.0	22.6	11.8	34.4
1303	34.4	21.4	38.0	26.7	8.8	35.5
1304	34.4	21.4	38.0	17.1	11.7	28.8
1305	34.4	21.4	38.0	14.7	7.1	21.8
1306	34.4	21.4	38.0	15.8	7.2	23.0
1307	34.4	21.4	38.0	13.1	8.5	21.6
1308	34.4	21.4	38.0	18.8	8.0	26.8
1309	34.4	21.4	38.0	21.7	7.8	29.5
1401	34.4	21.4	38.0	28.4	9.2	37.6
1402	34.4	21.4	38.0	22.6	11.8	34.4
1403	34.4	21.4	38.0	27.0	8.9	35.9
1404	34.4	21.4	38.0	16.5	11.8	28.3
1405	34.4	21.4	38.0	14.8	7.1	21.9
1406	34.4	21.4	38.0	16.0	7.2	23.2
1407	34.4	21.4	38.0	13.4	8.4	21.8
1408	34.4	21.4	38.0	17.9	8.1	26.0
1409	34.4	21.4	38.0	20.7	7.8	28.5
1501	34.4	21.4	38.0	28.5	9.2	37.7
1502	34.4	21.4	38.0	22.7	11.8	34.5
1503	34.4	21.4	38.0	27.2	8.7	35.9
1504	34.4	21.4	38.0	16.6	11.8	28.4
1505	34.4	21.4	38.0	15.0	7.1	22.1
1506	34.4	21.4	38.0	16.1	7.3	23.4
1507	34.4	21.4	38.0	13.4	8.4	21.8
1508	34.4	21.4	38.0	18.0	8.2	26.2
1509	34.4	21.4	38.0	20.8	8.0	28.8

Unit Number	BASIX Requirements (MJ/m2/year)			Final Results (MJ/m2/year) (with treatments)		
	Heating	Cooling	Total	Heating	Cooling	Total
1601	34.4	21.4	38.0	28.6	9.2	37.8
1602	34.4	21.4	38.0	22.8	11.8	34.6
1603	34.4	21.4	38.0	27.3	8.7	36.0
1604	34.4	21.4	38.0	16.7	11.9	28.6
1605	34.4	21.4	38.0	15.0	7.1	22.1
1606	34.4	21.4	38.0	16.2	7.4	23.6
1607	34.4	21.4	38.0	13.5	8.4	21.9
1608	34.4	21.4	38.0	18.2	8.1	26.3
1609	34.4	21.4	38.0	20.9	7.8	28.7
1701	34.4	21.4	38.0	28.6	8.9	37.5
1702	34.4	21.4	38.0	23.0	11.7	34.7
1703	34.4	21.4	38.0	27.5	8.8	36.3
1704	34.4	21.4	38.0	16.8	11.4	28.2
1705	34.4	21.4	38.0	15.0	7.1	22.1
1706	34.4	21.4	38.0	16.2	7.5	23.7
1707	34.4	21.4	38.0	13.6	8.4	22.0
1708	34.4	21.4	38.0	18.3	8.1	26.4
1709	34.4	21.4	38.0	21.1	7.8	28.9
1801	34.4	21.4	38.0	28.7	9.0	37.7
1802	34.4	21.4	38.0	23.1	11.7	34.8
1803	34.4	21.4	38.0	27.6	8.8	36.4
1804	34.4	21.4	38.0	16.9	11.8	28.7
1805	34.4	21.4	38.0	15.1	7.2	22.3
1806	34.4	21.4	38.0	16.2	7.4	23.6
1807	34.4	21.4	38.0	13.6	8.5	22.1
1808	34.4	21.4	38.0	18.4	8.2	26.6
1809	34.4	21.4	38.0	21.2	7.8	29.0
1901	34.4	21.4	38.0	28.9	9.1	38.0
1902	34.4	21.4	38.0	23.3	11.7	35.0
1903	34.4	21.4	38.0	27.7	8.6	36.3
1904	34.4	21.4	38.0	17.0	11.9	28.9
1905	34.4	21.4	38.0	15.1	7.2	22.3
1906	34.4	21.4	38.0	16.3	7.4	23.7
1907	34.4	21.4	38.0	13.7	8.5	22.2

Unit Number	BASIX Requirements (MJ/m2/year)			Final Results (MJ/m2/year) (with treatments)		
	Heating	Cooling	Total	Heating	Cooling	Total
1908	34.4	21.4	38.0	18.5	8.1	26.6
1909	34.4	21.4	38.0	21.3	7.9	29.2
2001	34.4	21.4	38.0	29.0	9.0	38.0
2002	34.4	21.4	38.0	23.3	11.7	35.0
2003	34.4	21.4	38.0	27.9	8.6	36.5
2004	34.4	21.4	38.0	17.1	11.8	28.9
2005	34.4	21.4	38.0	15.1	7.2	22.3
2006	34.4	21.4	38.0	16.4	7.5	23.9
2007	34.4	21.4	38.0	13.8	8.5	22.3
2008	34.4	21.4	38.0	18.7	8.2	26.9
2009	34.4	21.4	38.0	21.3	7.9	29.2
2101	34.4	21.4	38.0	28.7	7.7	36.4
2102	34.4	21.4	38.0	23.3	9.8	33.1
2103	34.4	21.4	38.0	25.9	7.7	33.6
2104	34.4	21.4	38.0	21.8	10.2	32.0
2105	34.4	21.4	38.0	18.5	6.2	24.7
2106	34.4	21.4	38.0	20.8	6.6	27.4
2107	34.4	21.4	38.0	17.8	6.9	24.7
2108	34.4	21.4	38.0	27.2	6.7	33.9
2109	34.4	21.4	38.0	30.6	6.6	37.2

3.3 Energy

The minimum target score in BASIX to achieve energy usage compliance is 63%. The minimum score is achieved through the inclusion of the following;

3.3.1 Central Systems

- The central hot water systems are to be gas fired storage (manifolded) systems. All piping (internal and external to ringmain and supply riser) for the hot water systems are to include R1.0 (~38mm) insulation.
- The lift system in the development is to be gearless traction with VVVF motor.
- A photovoltaic system with a peak kW rated electrical output of 70kW is to be installed.

3.3.2 Common Areas

The BASIX requirements for the ventilation and lighting systems within the various common areas are listed in Tables 4 and 5 below:

Table 4 - Ventilation Systems

Common Area	Ventilation System Type	Efficiency Measure
Basement car park area (B7-B4)	ventilation (supply + exhaust)	Carbon monoxide monitor + VSD fan
B1 Coms/Telco Rooms	ventilation supply only	Thermostatically controlled
B1 MSR	ventilation supply only	Thermostatically controlled
B1 Substation	ventilation supply only	Thermostatically controlled
B1 Residential Garbage Holding/Storage Room	ventilation exhaust only	N/a
B1 Bulky Goods Storage/Rooms	ventilation exhaust only	N/a
B1 Main Chute Room	ventilation exhaust only	N/a
GL GHR	ventilation exhaust only	N/a
B3 EOT Hot Water Plant	ventilation supply only	None i.e., continuous
B2 Supply Air Plant Room	ventilation supply only	None i.e., continuous
B1 Grease Arrestors	ventilation exhaust only	None i.e., continuous
B1 Reused Rainwater Plant	ventilation supply only	None i.e., continuous
B1 Gas Plantroom	ventilation supply only	None i.e., continuous
B1 Cold Water Plantroom	ventilation supply only	None i.e., continuous
B2 Resi Pump Station	ventilation supply only	None i.e., continuous
GL FCR	ventilation supply only	None i.e., continuous
B1 Stair Press Fan Room	ventilation exhaust only	None i.e., continuous
Mezz Water Cooled Chiller Plantroom	ventilation exhaust only	Thermostatically controlled
Mezz Hot Water Plant	ventilation supply only	None i.e., continuous
GL Pallet Room	ventilation exhaust only	None i.e., continuous
Mezz Fire Services Water Storage Tank	ventilation supply only	None i.e., continuous
B1 Fire Hydrant/Sprinkler Pump Room	ventilation supply only	None i.e., continuous
L3 Communal Amenities	ventilation exhaust only	Time clock or BMC Controlled
L3 Garden Store	no mechanical ventilation	N/a
GL Cleaner	no mechanical ventilation	N/a
B1 Car Park Exhaust Fan Room	ventilation exhaust only	None i.e., continuous
B2-B1 Supply Air Plenum	ventilation supply only	None i.e., continuous
GL-L2 Amenities	ventilation exhaust only	Time clock or BMC Controlled
Resi Lobby (GL)	ventilation supply only	Time clock or BMC Controlled
Basement Resi Lobbies (B7-B4, B1)	ventilation supply only	Time clock or BMC Controlled
Open Resi Lobbies (L3-L21)	no mechanical ventilation	N/a

Table 5 - Lighting Systems

Common Area	Ventilation System Type	Efficiency Measure
Lift bank (No. 1)	Light-emitting diode	Connected to lift call button
Basement car park area (B7-B4)	Light-emitting diode	Time clock and motion sensors
B1 Coms/Telco Rooms	Light-emitting diode	Manual on / Manual off
B1 MSR	Light-emitting diode	Manual on / Manual off
B1 Substation	Light-emitting diode	Manual on / Manual off
B1 Residential Garbage Holding/Storage Room	Light-emitting diode	Manual on / Manual off
B1 Bulky Goods Storage/Rooms	Light-emitting diode	Manual on / Manual off
B1 Main Chute Room	Light-emitting diode	Manual on / Manual off
GL GHR	Light-emitting diode	Manual on / Manual off
B3 EOT Hot Water Plant	Light-emitting diode	Manual on / Manual off
B2 Supply Air Plant Room	Light-emitting diode	Manual on / Manual off
B1 Grease Arrestors	Light-emitting diode	Manual on / Manual off
B1 Reused Rainwater Plant	Light-emitting diode	Manual on / Manual off
B1 Gas Plantroom	Light-emitting diode	Manual on / Manual off
B1 Cold Water Plantroom	Light-emitting diode	Manual on / Manual off
B2 Resi Pump Station	Light-emitting diode	Manual on / Manual off
GL FCR	Light-emitting diode	Manual on / Manual off
B1 Stair Press Fan Room	Light-emitting diode	Manual on / Manual off
Mezz Water Cooled Chiller Plantroom	Light-emitting diode	Manual on / Manual off
Mezz Hot Water Plant	Light-emitting diode	Manual on / Manual off
GL Pallet Room	Light-emitting diode	Manual on / Manual off
Mezz Fire Services Water Storage Tank	Light-emitting diode	Manual on / Manual off
B1 Fire Hydrant/Sprinkler Pump Room	Light-emitting diode	Manual on / Manual off
L3 Communal Amenities	Light-emitting diode	Manual on / Manual off
L3 Garden Store	Light-emitting diode	Manual on / Manual off
GL Cleaner	Light-emitting diode	Manual on / Manual off
B1 Car Park Exhaust Fan Room	Light-emitting diode	Manual on / Manual off
B2-B1 Supply Air Plenum	Light-emitting diode	Manual on / Manual off
GL-L2 Amenities	Light-emitting diode	Manual on / Manual off
Resi Lobby (GL)	Light-emitting diode	Time clock and motion sensors
Basement Resi Lobbies (B7-B4, B1)	Light-emitting diode	Time clock and motion sensors
Open Resi Lobbies (L3-L21)	Light-emitting diode	Time clock and motion sensors

3.3.3 Dwellings

- The bathroom exhaust fans within each residential dwelling are individual fans, ducted to façade/roof and controlled by manual on/off switches.
- The exhaust fans within each residential dwelling are individual fans, ducted to façade/roof and controlled by manual on/off switches.
- The laundry exhaust fans within each residential dwelling are individual fans, ducted to façade/roof and controlled by manual on/off switches.
- Single-phase air conditioning systems are to be installed within each residential dwelling in the living and bedroom areas. The system is to have a minimum Energy Efficiency Ratio of at least 3.0 – 3.5 for cooling and heating.
- The bedrooms, living room, kitchen, bathroom, laundry and hallways within each residential dwelling of the proposed development will be primarily lit by fluorescent or LED lamps.
- A gas cooktop and electric oven to be installed within each residential dwelling.
- Dishwasher units to be installed within each residential dwelling. The dishwasher units are to have an energy efficiency rating of at least 4.0 stars.

Note that if any of the above systems are to be substituted by less efficient systems, an update to the BASIX certificate would also be required.

CONCLUSION

A BASIX assessment of the proposed development Fiveways, located at Crows Nest has been carried out. The results of the assessment indicate that the development will satisfy the requirements of BASIX if all of the items outlined in this report are incorporated into the design of the development. If there are changes to the building design and construction a reassessment would be required.

BASIX[®]Certificate

Building Sustainability Index www.basix.nsw.gov.au

Multi Dwelling

Certificate number: 1738270M_03

This certificate confirms that the proposed development will meet the NSW government's requirements for sustainability, if it is built in accordance with the commitments set out below. Terms used in this certificate, or in the commitments, have the meaning given by the document entitled "BASIX Definitions" dated 10/09/2020 published by the Department. This document is available at www.basix.nsw.gov.au

This certificate is a revision of certificate number 1738270M_02 submitted to the consent authority or certifier on 29 April 2024 with application SSD-66826207.

It is the responsibility of the applicant to verify with the consent authority that the original, or any revised certificate, complies with the requirements of Schedule 1 Clause 2A, 4A or 6A of the Environment Planning and Assessment Regulation 2000

Secretary

Date of issue: Thursday, 29 August 2024

To be valid, this certificate must be submitted with a development application or lodged with a complying development certificate application within 3 months of the date of issue.



Project summary

Project name	Fiveways, Crows Nest_03
Street address	391/423 PACIFIC HIGHWAY CROWS NEST 2065
Local Government Area	NORTH SYDNEY
Plan type and plan number	Deposited Plan DP29672
Lot no.	4
Section no.	--
No. of residential flat buildings	1
Residential flat buildings: no. of dwellings	188
Multi-dwelling housing: no. of dwellings	0
No. of single dwelling houses	0

Project score

Water	✓ 43	Target 40
Thermal Performance	✓ Pass	Target Pass
Energy	✓ 67	Target 63
Materials	✓ -12	Target n/a

Certificate Prepared by

Name / Company Name: Windtech Consultants

ABN (if applicable): 72050574037

Description of project

Project address

Project name	Fiveways, Crows Nest_03
Street address	391/423 PACIFIC HIGHWAY CROWS NEST 2065
Local Government Area	NORTH SYDNEY
Plan type and plan number	Deposited Plan DP29672
Lot no.	4
Section no.	--

Project type

No. of residential flat buildings	1
Residential flat buildings: no. of dwellings	188
Multi-dwelling housing: no. of dwellings	0
No. of single dwelling houses	0

Site details

Site area (m ²)	3200.9
Roof area (m ²)	1212
Non-residential floor area (m ²)	14594
Residential car spaces	190
Non-residential car spaces	134

Common area landscape

Common area lawn (m ²)	2760
Common area garden (m ²)	0
Area of indigenous or low water use species (m ²)	0

Assessor details and thermal loads

Assessor number	20887
Certificate number	0009276110
Climate zone	56

Project score

Water	✔ 43	Target 40
Thermal Performance	✔ Pass	Target Pass
Energy	✔ 67	Target 63
Materials	✔ -12	Target n/a

Description of project

The tables below describe the dwellings and common areas within the project

Residential flat buildings - Building1, 188 dwellings, 22 storeys above ground

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
1001	2	81.80	0	0	0
1005	1	58.60	0	0	0
1009	2	80.30	0	0	0
1102	2	88.00	0	0	0
1106	2	83.30	0	0	0
1110	2	81.20	0	0	0
1203	2	83.70	0	0	0
1207	2	84.00	0	0	0
1211	3	119.70	0	0	0
1304	3	112	0	0	0
1308	3	133.00	0	0	0
1403	2	83.70	0	0	0
1407	2	81.50	0	0	0
1502	2	88.00	0	0	0
1506	2	84.00	0	0	0
1601	2	81.80	0	0	0
1605	2	83.30	0	0	0
1609	3	123.60	0	0	0
1704	3	112	0	0	0
1708	3	133.00	0	0	0
1803	2	83.70	0	0	0
Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
1002	2	88.00	0	0	0
1006	2	83.30	0	0	0
1010	2	81.20	0	0	0
1103	2	83.70	0	0	0
1107	2	84.00	0	0	0
1111	3	119.70	0	0	0
1204	1	51.8	5.2	0	0
1208	2	81.50	0	0	0
1301	2	81.80	0	0	0
1305	2	83.30	0	0	0
1309	3	123.60	0	0	0
1404	3	112	0	0	0
1408	3	133.00	0	0	0
1503	2	83.70	0	0	0
1507	2	81.50	0	0	0
1602	2	88.00	0	0	0
1606	2	84.00	0	0	0
1701	2	81.80	0	0	0
1705	2	83.30	0	0	0
1709	3	123.60	0	0	0
1804	3	112	0	0	0
Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
1003	2	83.70	0	0	0
1007	2	84.00	0	0	0
1011	3	119.70	0	0	0
1104	1	51.8	5.2	0	0
1108	2	81.50	0	0	0
1201	2	81.80	0	0	0
1205	1	58.60	0	0	0
1209	2	80.30	0	0	0
1302	2	88.00	0	0	0
1306	2	84.00	0	0	0
1401	2	81.80	0	0	0
1405	2	83.30	0	0	0
1409	3	123.60	0	0	0
1504	3	112	0	0	0
1508	3	133.00	0	0	0
1603	2	83.70	0	0	0
1607	2	81.50	0	0	0
1702	2	88.00	0	0	0
1706	2	84.00	0	0	0
1801	2	81.80	0	0	0
1805	2	83.30	0	0	0
Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
1004	1	51.8	5.2	0	0
1008	2	81.50	0	0	0
1101	2	81.80	0	0	0
1105	1	58.60	0	0	0
1109	2	80.30	0	0	0
1202	2	88.00	0	0	0
1206	2	83.30	0	0	0
1210	2	81.20	0	0	0
1303	2	83.70	0	0	0
1307	2	81.50	0	0	0
1402	2	88.00	0	0	0
1406	2	84.00	0	0	0
1501	2	81.80	0	0	0
1505	2	83.30	0	0	0
1509	3	123.60	0	0	0
1604	3	112	0	0	0
1608	3	133.00	0	0	0
1703	2	83.70	0	0	0
1707	2	81.50	0	0	0
1802	2	88.00	0	0	0
1806	2	84.00	0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
1807	2	81.50	0	0	0
1902	2	88.00	0	0	0
1906	2	84.00	0	0	0
2001	2	81.80	0	0	0
2005	2	83.30	0	0	0
2009	3	123.60	0	0	0
2104	3	112	0	0	0
2108	3	133.00	0	0	0
303	3	119.70	0	0	0
404	2	83.70	0	0	0
408	2	84.00	0	0	0
412	3	119.70	0	0	0
504	2	83.70	0	0	0
508	2	84.00	0	0	0
512	3	119.70	0	0	0
604	2	83.70	0	0	0
608	2	84.00	0	0	0
612	3	119.70	0	0	0
704	2	83.70	0	0	0
708	2	84.00	0	0	0
712	3	119.70	0	0	0
804	2	83.70	0	0	0
808	2	84.00	0	0	0
812	3	119.70	0	0	0
904	1	51.8	5.2	0	0
908	2	81.50	0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
1808	3	133.00	0	0	0
1903	2	83.70	0	0	0
1907	2	81.50	0	0	0
2002	2	88.00	0	0	0
2006	2	84.00	0	0	0
2101	2	81.80	0	0	0
2105	2	83.30	0	0	0
2109	3	123.60	0	0	0
401	1	51.20	0	0	0
405	1	51.80	5.2	0	0
409	2	81.50	0	0	0
501	1	51.20	0	0	0
505	1	51.80	5.2	0	0
509	2	81.50	0	0	0
601	1	51.20	0	0	0
605	1	51.80	5.2	0	0
609	2	81.50	0	0	0
701	1	51.20	0	0	0
705	1	51.80	5.2	0	0
709	2	81.50	0	0	0
801	1	51.20	0	0	0
805	1	51.80	5.2	0	0
809	2	81.50	0	0	0
901	2	81.80	0	0	0
905	1	58.60	0	0	0
909	2	80.30	0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
1809	3	123.60	0	0	0
1904	3	112	0	0	0
1908	3	133.00	0	0	0
2003	2	83.70	0	0	0
2007	2	81.50	0	0	0
2102	2	88.00	0	0	0
2106	2	84.00	0	0	0
301	2	80.30	0	0	0
402	1	54.60	0	0	0
406	1	58.60	0	0	0
410	2	80.30	0	0	0
502	1	54.60	0	0	0
506	1	58.60	0	0	0
510	2	80.30	0	0	0
602	1	54.60	0	0	0
606	1	58.60	0	0	0
610	2	80.30	0	0	0
702	1	54.60	0	0	0
706	1	58.60	0	0	0
710	2	80.30	0	0	0
802	1	54.60	0	0	0
806	1	58.60	0	0	0
810	2	80.30	0	0	0
902	2	88.00	0	0	0
906	2	83.30	0	0	0
910	2	81.20	0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
1901	2	81.80	0	0	0
1905	2	83.30	0	0	0
1909	3	123.60	0	0	0
2004	3	112	0	0	0
2008	3	133.00	0	0	0
2103	2	83.70	0	0	0
2107	2	81.50	0	0	0
302	2	81.20	0	0	0
403	1	54.60	0	0	0
407	2	83.30	0	0	0
411	2	81.20	0	0	0
503	1	54.60	0	0	0
507	2	83.30	0	0	0
511	2	81.20	0	0	0
603	1	54.60	0	0	0
607	2	83.30	0	0	0
611	2	81.20	0	0	0
703	1	54.60	0	0	0
707	2	83.30	0	0	0
711	2	81.20	0	0	0
803	1	54.60	0	0	0
807	2	83.30	0	0	0
811	2	81.20	0	0	0
903	2	83.70	0	0	0
907	2	84.00	0	0	0
911	3	119.70	0	0	0

Description of project

The tables below describe the dwellings and common areas within the project

Common areas of unit building - Building1

Common area	Floor area (m ²)	Common area	Floor area (m ²)	Common area	Floor area (m ²)
Lift bank (No. 1)	-	Basement car park area (B7-B4)	10828	B1 Coms/Telco Rooms	40
B1 MSR	61	B1 Substation	249	B1 Residential Garbage Holding/Storage Room	45
B1 Bulky Goods Storage/Rooms	47	GL GHR	76	B1 Main Chute Room	11
B3 EOT Hot Water Plant	9	B2 Resi Pump Station	9	B1 Grease Arrestors	70
B1 Reused Rainwater Plant	13	B1 Gas Plantroom	25	B1 Cold Water Plantroom	25
GL FCR	23	B1 Stair Press Fan Room	87	Mezz Water Cooled Chiller Plantroom	113
Mezz Hot Water Plant	24	B1 Stair Press Fan Room	96	Mezz Fire Services Water Storage Tank	90
B1 Fire Hydrant/Sprinkler Pump Room	35	B2 Supply Air Plant Room	109	L3 Communal Amenities	8
Garden Store	4	GL Cleaner	5	B1 Car Park Exhaust Fan Room	54
B1 Supply Air Plenum	96	GI-L2 Amenities	230	GL FCR	23
Resi Lobby (GL)	114	Basement Resi Lobbies (B7-B4, B1)	225	Open Resi Lobbies (L3-L21)	4655

Schedule of BASIX commitments

1. Commitments for Residential flat buildings - Building1

(a) Buildings

(i) Materials

(b) Dwellings

(i) Water

(ii) Energy

(iii) Thermal Performance

(c) Common areas and central systems/facilities

(i) Water

(ii) Energy

2. Commitments for multi-dwelling housing

(a) Dwellings

(i) Water

(ii) Energy

(iii) Thermal Performance and Materials

3. Commitments for single dwelling houses

(a) Dwellings

(i) Water

(ii) Energy

(iii) Thermal Performance and Materials

4. Commitments for common areas and central systems/facilities for the development (non-building specific)

(b) Common areas and central systems/facilities

(i) Water

(ii) Energy

Schedule of BASIX commitments

The commitments set out below regulate how the proposed development is to be carried out. It is a condition of any development consent granted, or complying development certificate issued, for the proposed development, that BASIX commitments be complied with.

1. Commitments for Residential flat buildings - Building1

(a) Buildings

(i) Materials	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The details of the proposed development on the Assessor Certificate must be consistent with the details shown in this BASIX Certificate, including the details shown in the "Floor types", "External wall types", "Internal wall types", "Ceiling and roof types", "Frames" and "Glazing" tables below.			✓
(b) The applicant must show on the plans accompanying the application for a construction certificate (or complying development certificate, if applicable), all specifications included in the tables below.		✓	
(c) The applicant must construct the floors, walls, roof, ceiling and roof, windows, glazed doors and skylights of the development in accordance with the specifications listed in the tables below. In the case of glazing, a 5% variance from the area values listed in the "Frames" and "Glazing" tables is permitted.	✓	✓	✓
(d) The applicant must show through receipts that the materials purchased for construction are consistent with the specifications listed in the below tables.			✓

Floor types

Floor type	Area (m2)	Insulation	Low emissions option
floors above habitable rooms, frame: suspended concrete slab	16165	-	none

External wall types

External wall type	Construction type	Area (m2)	Low emissions option	Insulation
External wall type 1	framed (metal clad), frame: timber - untreated softwood	1200	none	-
External wall type 2	brick veneer, frame: timber - untreated softwood	2500	none	-
External wall type 3	concrete block/ plasterboard, frame: timber - untreated softwood	1000	none	-

Internal wall types

Internal wall type	Construction type	Area (m2)	Insulation
Internal wall type 1	plasterboard, frame:timber - untreated softwood	3500	-

Reinforcement concrete frames/columns

Building has reinforced concrete frame/columns?	Volume (m³)	Low emissions option
-	-	-

Ceiling and roof types

Ceiling and roof type	Area (m²)	Roof Insulation	Ceiling Insulation
concrete - plasterboard internal, frame: no frame	16059	foil/sarking	polyester

Glazing types

Frame types

Single glazing (m²)	Double glazing (m²)	Triple glazing (m²)	Aluminium frames (m²)	Timber frames (m²)	uPVC frames (m²)	Steel frames (m²)	Composite frames (m²)
0	1000	0	1000	0	0	0	0

(b) Dwellings

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must comply with the commitments listed below in carrying out the development of a dwelling listed in a table below.			
(b) The applicant must plant indigenous or low water use species of vegetation throughout the area of land specified for the dwelling in the "Indigenous species" column of the table below, as private landscaping for that dwelling. (This area of indigenous vegetation is to be contained within the "Area of garden and lawn" for the dwelling specified in the "Description of Project" table).	✔	✔	
(c) If a rating is specified in the table below for a fixture or appliance to be installed in the dwelling, the applicant must ensure that each such fixture and appliance meets the rating specified for it.		✔	✔
(d) The applicant must install an on demand hot water recirculation system which regulates all hot water use throughout the dwelling, where indicated for a dwelling in the "HW recirculation or diversion" column of the table below.		✔	✔
(e) The applicant must install: <ul style="list-style-type: none"> (aa) a hot water diversion system to all showers, kitchen sinks and all basins in the dwelling, where indicated for a dwelling in the "HW recirculation or diversion" column of the table below; and (bb) a separate diversion tank (or tanks) connected to the hot water diversion systems of at least 100 litres. The applicant must connect the hot water diversion tank to all toilets in the dwelling. 		✔ ✔	✔ ✔
(e) The applicant must not install a private swimming pool or spa for the dwelling, with a volume exceeding that specified for it in the table below.	✔	✔	
(f) If specified in the table, that pool or spa (or both) must have a pool cover or shading (or both).		✔	
(g) The pool or spa must be located as specified in the table.	✔	✔	
(h) The applicant must install, for the dwelling, each alternative water supply system, with the specified size, listed for that dwelling in the table below. Each system must be configured to collect run-off from the areas specified (excluding any area which supplies any other alternative water supply system), and to divert overflow as specified. Each system must be connected as specified.	✔	✔	✔

	Fixtures					Appliances		Individual pool				Individual spa		
Dwelling no.	All shower-heads	All toilet flushing systems	All kitchen taps	All bathroom taps	HW recirculation or diversion	All clothes washers	All dish-washers	Volume (max volume)	Pool cover	Pool location	Pool shaded	Volume (max volume)	Spa cover	Spa shaded
All dwellings	4 star (> 6 but ≤ 7.5 L/min)	4 star	5 star	5 star	-	3 star	4 star	-	-	-	-	-	-	-

Alternative water source								
Dwelling no.	Alternative water supply systems	Size	Configuration	Landscape connection	Toilet connection (s)	Laundry connection	Pool top-up	Spa top-up
All dwellings	No alternative water supply	-	-	-	-	-	-	-

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must comply with the commitments listed below in carrying out the development of a dwelling listed in a table below.			
(b) The applicant must install each hot water system specified for the dwelling in the table below, so that the dwelling's hot water is supplied by that system. If the table specifies a central hot water system for the dwelling, then the applicant must connect that central system to the dwelling, so that the dwelling's hot water is supplied by that central system.	✓	✓	✓
(c) The applicant must install, in each bathroom, kitchen and laundry of the dwelling, the ventilation system specified for that room in the table below. Each such ventilation system must have the operation control specified for it in the table.		✓	✓
(d) The applicant must install the cooling and heating system/s specified for the dwelling under the "Living areas" and "Bedroom areas" headings of the "Cooling" and "Heating" columns in the table below, in/for at least 1 living/bedroom area of the dwelling. If no cooling or heating system is specified in the table for "Living areas" or "Bedroom areas", then no systems may be installed in any such areas. If the term "zoned" is specified beside an air conditioning system, then the system must provide for day/night zoning between living areas and bedrooms.		✓	✓
(e) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Artificial lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that the "primary type of artificial lighting" for each such room in the dwelling is fluorescent lighting or light emitting diode (LED) lighting. If the term "dedicated" is specified for a particular room or area, then the light fittings in that room or area must only be capable of being used for fluorescent lighting or light emitting diode (LED) lighting.		✓	✓
(f) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Natural lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that each such room or area is fitted with a window and/or skylight.	✓	✓	✓
(g) This commitment applies if the applicant installs a water heating system for the dwelling's pool or spa. The applicant must: (aa) install the system specified for the pool in the "Individual Pool" column of the table below (or alternatively must not install any system for the pool). If specified, the applicant must install a timer, to control the pool's pump; and (bb) install the system specified for the spa in the "Individual Spa" column of the table below (or alternatively must not install any system for the spa). If specified, the applicant must install a timer to control the spa's pump.		✓ ✓	
(h) The applicant must install in the dwelling: (aa) the kitchen cook-top and oven specified for that dwelling in the "Appliances & other efficiency measures" column of the table below;		✓	


(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(bb) each appliance for which a rating is specified for that dwelling in the "Appliances & other efficiency measures" column of the table, and ensure that the appliance has that minimum rating; and (cc) any clothes drying line specified for the dwelling in the "Appliances & other efficiency measures" column of the table.		✓ ✓	✓
(i) If specified in the table, the applicant must carry out the development so that each refrigerator space in the dwelling is "well ventilated".		✓	

	Hot water	Bathroom ventilation system		Kitchen ventilation system		Laundry ventilation system	
Dwelling no.	Hot water system	Each bathroom	Operation control	Each kitchen	Operation control	Each laundry	Operation control
All dwellings	Central hot water system (No. 1)	individual fan, ducted to façade or roof	manual switch on/off	individual fan, ducted to façade or roof	manual switch on/off	individual fan, ducted to façade or roof	manual switch on/off

	Cooling		Heating		Natural lighting	
Dwelling no.	living areas	bedroom areas	living areas	bedroom areas	No. of bathrooms or toilets	Main kitchen
1406, 1509, 1703, 1806, 1909	1-phase airconditioning - ducted / EER 3.0 - 3.5	1-phase airconditioning - ducted / EER 3.0 - 3.5	1-phase airconditioning - ducted / EER 3.0 - 3.5	1-phase airconditioning - ducted / EER 3.0 - 3.5	1	yes
1004, 1008, 1102, 1106, 1111, 1204, 1209, 1302, 1307, 1402, 1407, 1505, 1601, 1608, 1704, 1802, 1807, 1905, 2001, 2008, 2103, 401, 408, 412, 505, 509, 604, 608, 703, 707, 712, 804, 809, 901, 906, 910	1-phase airconditioning - ducted / EER 3.0 - 3.5	1-phase airconditioning - ducted / EER 3.0 - 3.5	1-phase airconditioning - ducted / EER 3.0 - 3.5	1-phase airconditioning - ducted / EER 3.0 - 3.5	0	yes
All other dwellings	1-phase airconditioning - ducted / EER 3.0 - 3.5	1-phase airconditioning - ducted / EER 3.0 - 3.5	1-phase airconditioning - ducted / EER 3.0 - 3.5	1-phase airconditioning - ducted / EER 3.0 - 3.5	0	no

Dwelling no.	Individual pool			Individual spa		Appliances other efficiency measures				
	Pool heating system	Pool Pump	Timer	Spa heating system	Timer	Kitchen cooktop/oven	Dishwasher	Clothes dryer	Indoor or sheltered clothes drying line	Private outdoor or unsheltered clothes drying line
All dwellings	-	-	-	-	-	gas cooktop & electric oven	4 star	not specified	no	no

(iii) Thermal Performance	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must attach the certificate referred to under "Assessor details" on the front page of this BASIX certificate (the "Assessor Certificate") to the development application and construction certificate application for the proposed development (or, if the applicant is applying for a complying development certificate for the proposed development, to that application). The applicant must also attach the Assessor Certificate to the application for a final occupation certificate for the proposed development.			
(b) The Assessor Certificate must have been issued by an Accredited Assessor in accordance with the Thermal Comfort Protocol.			
(c) The details of the proposed development on the Assessor Certificate must be consistent with the details shown in this BASIX Certificate, including the details shown in the "Thermal Loads" table below.			
(d) The applicant must show on the plans accompanying the development application for the proposed development, all matters which the Thermal Comfort Protocol requires to be shown on those plans. Those plans must bear a stamp of endorsement from the Accredited Assessor, to certify that this is the case.	✓		
(e) The applicant must show on the plans accompanying the application for a construction certificate (or complying development certificate, if applicable), all thermal performance specifications set out in the Assessor Certificate, and all aspects of the proposed development which were used to calculate those specifications.		✓	
(f) The applicant must construct the development in accordance with all thermal performance specifications set out in the Assessor Certificate, and in accordance with those aspects of the development application or application for a complying development certificate which were used to calculate those specifications.		✓	✓
(g) Where there is an in-slab heating or cooling system, the applicant must: (aa) Install insulation with an R-value of not less than 1.0 around the vertical edges of the perimeter of the slab; or (bb) On a suspended floor, install insulation with an R-value of not less than 1.0 underneath the slab and around the vertical edges of the perimeter of the slab.	✓	✓	✓
(h) The applicant must construct the floors and walls of the development in accordance with the specifications listed in the table below.	✓	✓	✓
(i) The applicant must show on The plans accompanying The development application for The proposed development, The locations of ceiling fans set out in The Assessor Certificate.	✓		

(iii) Thermal Performance	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(j) The applicant must show on the plans accompanying the application for a construction certificate (or complying development certificate, if applicable), the locations of ceiling fans set out in the Assessor Certificate.			

Thermal loads			
Dwelling no.	Area adjusted heating load (in MJ/m ² /yr)	Area adjusted cooling load (in MJ/m ² /yr)	Area adjusted total load (in MJ/m ² /yr)
1001	27.5	9.1	36.600
1002	22.2	11.9	34.100
1003	26.2	8.8	35.000
1004	22.0	13.3	35.300
1005	17.6	5.7	23.300
1006	14.4	7.1	21.500
1007	15.4	7.3	22.700
1008	11.6	8.2	19.800
1009	19.5	8.7	28.200
1010	16.7	9.9	26.600
1011	21.8	10.3	32.100
1101	27.8	8.9	36.700
1102	22.4	11.8	34.200
1103	26.5	8.8	35.300
1104	22.2	12.9	35.100
1105	18.1	5.9	24.000
1106	14.6	7.1	21.700
1107	15.6	7.3	22.900
1108	11.6	8.3	19.900
1109	19.8	8.7	28.500
1110	17.0	10.0	27.000
1111	22.0	10.2	32.200
1201	27.9	9.1	37.000
1202	22.5	11.9	34.400
1203	26.6	8.9	35.500
1204	21.1	13.3	34.400

Dwelling no.	Thermal loads		
	Area adjusted heating load (in MJ/m ² /yr)	Area adjusted cooling load (in MJ/m ² /yr)	Area adjusted total load (in MJ/m ² /yr)
1205	19.5	5.4	24.900
1206	14.7	7.0	21.700
1207	15.7	7.3	23.000
1208	11.7	8.3	20.000
1209	20.3	8.3	28.600
1210	16.4	9.8	26.200
1211	22.2	10.1	32.300
1301	28.1	9.4	37.500
1303	26.7	8.8	35.500
1304	17.1	11.7	28.800
1305	14.7	7.1	21.800
1306	15.8	7.2	23.000
1307	13.1	8.5	21.600
1308	18.8	8.0	26.800
1309	21.7	7.8	29.500
1401	28.4	9.2	37.600
1403	27.0	8.9	35.900
1404	16.5	11.8	28.300
1405	14.8	7.1	21.900
1406	16.0	7.2	23.200
1408	17.9	8.1	26.000
1409	20.7	7.8	28.500
1501	28.5	9.2	37.700
1502	22.7	11.8	34.500
1503	27.2	8.7	35.900
1504	16.6	11.8	28.400
1506	16.1	7.3	23.400
1508	18.0	8.2	26.200
1509	20.8	8.0	28.800
1601	28.6	9.2	37.800
1602	22.8	11.8	34.600

Dwelling no.	Thermal loads		
	Area adjusted heating load (in MJ/m ² /yr)	Area adjusted cooling load (in MJ/m ² /yr)	Area adjusted total load (in MJ/m ² /yr)
1603	27.3	8.7	36.000
1604	16.7	11.9	28.600
1607	13.5	8.4	21.900
1608	18.2	8.1	26.300
1609	20.9	7.8	28.700
1701	28.6	8.9	37.500
1702	23.0	11.7	34.700
1703	27.5	8.8	36.300
1704	16.8	11.4	28.200
1706	16.2	7.5	23.700
1707	13.6	8.4	22.000
1708	18.3	8.1	26.400
1709	21.1	7.8	28.900
1801	28.7	9.0	37.700
1802	23.1	11.7	34.800
1803	27.6	8.8	36.400
1804	16.9	11.8	28.700
1807	13.6	8.5	22.100
1808	18.4	8.2	26.600
1809	21.2	7.8	29.000
1901	28.9	9.1	38.000
1903	27.7	8.6	36.300
1904	17.0	11.9	28.900
1906	16.3	7.4	23.700
1907	13.7	8.5	22.200
1908	18.5	8.1	26.600
2001	29.0	9.0	38.000
2003	27.9	8.6	36.500
2004	17.1	11.8	28.900
2006	16.4	7.5	23.900
2007	13.8	8.5	22.300

Dwelling no.	Thermal loads		
	Area adjusted heating load (in MJ/m ² /yr)	Area adjusted cooling load (in MJ/m ² /yr)	Area adjusted total load (in MJ/m ² /yr)
2008	18.7	8.2	26.900
2101	28.7	7.7	36.400
2102	23.3	9.8	33.100
2103	25.9	7.7	33.600
2104	21.8	10.2	32.000
2105	18.5	6.2	24.700
2106	20.8	6.6	27.400
2107	17.8	6.9	24.700
2108	27.2	6.7	33.900
2109	30.6	6.6	37.200
301	9.9	12.0	21.900
302	7.3	14.7	22.000
303	9.1	14.6	23.700
401	28.7	8.5	37.200
404	27.6	7.2	34.800
405	20.2	12.2	32.400
406	19.2	5.3	24.500
407	14.0	5.8	19.800
408	15.6	6.5	22.100
409	11.9	6.9	18.800
410	16.1	9.1	25.200
411	13.5	10.4	23.900
412	18.1	10.8	28.900
501	28.2	8.5	36.700
504	24.8	8.8	33.600
505	21.0	13.2	34.200
506	16.4	6.2	22.600
507	13.6	6.7	20.300
508	14.6	7.3	21.900
509	10.9	8.4	19.300
510	18.4	9.1	27.500

Dwelling no.	Thermal loads		
	Area adjusted heating load (in MJ/m ² /yr)	Area adjusted cooling load (in MJ/m ² /yr)	Area adjusted total load (in MJ/m ² /yr)
511	15.6	10.0	25.600
512	20.5	10.2	30.700
601	28.5	9.0	37.500
604	25.1	8.8	33.900
605	21.3	13.3	34.600
606	16.7	6.1	22.800
607	13.7	6.9	20.600
608	14.8	7.4	22.200
609	11.0	8.4	19.400
610	18.6	8.8	27.400
611	15.8	9.9	25.700
612	20.8	10.4	31.200
701	28.8	8.9	37.700
704	25.4	8.8	34.200
705	21.4	13.3	34.700
706	17.0	6.0	23.000
707	13.9	7.0	20.900
708	15.0	7.4	22.400
709	11.2	8.2	19.400
710	18.9	8.9	27.800
711	16.1	10.1	26.200
712	21.1	10.5	31.600
801	29.1	8.5	37.600
802	21.4	11.8	33.200
803	21.2	11.6	32.800
804	25.7	8.8	34.500
805	21.7	13.2	34.900
806	17.3	5.8	23.100
807	14.1	7.0	21.100
808	15.2	7.2	22.400
809	11.3	8.3	19.600

Dwelling no.	Thermal loads		
	Area adjusted heating load (in MJ/m ² /yr)	Area adjusted cooling load (in MJ/m ² /yr)	Area adjusted total load (in MJ/m ² /yr)
810	19.2	8.9	28.100
811	16.3	10.0	26.300
812	21.3	10.3	31.600
901	27.3	8.8	36.100
902	22.8	11.6	34.400
903	26.0	8.8	34.800
904	21.8	13.3	35.100
905	17.6	5.8	23.400
906	14.3	7.0	21.300
907	15.3	7.4	22.700
908	11.5	8.2	19.700
909	19.4	8.8	28.200
910	16.6	9.9	26.500
911	21.6	10.2	31.800
1302, 1402	22.6	11.8	34.400
1407, 1507	13.4	8.4	21.800
1606, 1806	16.2	7.4	23.600
1902, 2002	23.3	11.7	35.000
1909, 2009	21.3	7.9	29.200
402, 403	21.5	10.4	31.900
502, 503	20.3	11.7	32.000
602, 603	20.6	11.8	32.400
702, 703	20.9	11.5	32.400
1505, 1605, 1705	15.0	7.1	22.100
All other dwellings	15.1	7.2	22.300

(c) Common areas and central systems/facilities

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a showerhead, toilet, tap or clothes washer into a common area, then that item must meet the specifications listed for it in the table.		✓	✓
(b) The applicant must install (or ensure that the development is serviced by) the alternative water supply system(s) specified in the "Central systems" column of the table below. In each case, the system must be sized, be configured, and be connected, as specified in the table.	✓	✓	✓
(c) A swimming pool or spa listed in the table must not have a volume (in kLs) greater than that specified for the pool or spa in the table.	✓	✓	
(d) A pool or spa listed in the table must have a cover or shading if specified for the pool or spa in the table.		✓	
(e) The applicant must install each fire sprinkler system listed in the table so that the system is configured as specified in the table.		✓	✓
(f) The applicant must ensure that the central cooling system for a cooling tower is configured as specified in the table.		✓	✓

Common area	Showerheads rating	Toilets rating	Taps rating	Clothes washers rating
All common areas	no common facility	4 star	4 star	no common laundry facility

Central systems	Size	Configuration	Connection (to allow for...)
Central water tank - rainwater or stormwater (No. 1)	20000	To collect run-off from at least: - 150 square metres of roof area of buildings in the development - 0 square metres of impervious area in the development - 0 square metres of garden/lawn area in the development - 0 square metres of planter box area in the development (excluding, in each case, any area which drains to, or supplies, any other alternative water supply system).	- irrigation of 2760 square metres of common landscaped area on the site - car washing in 0 car washing bays on the site
Fire sprinkler system (No. 1)	-	-	-
Fire sprinkler system (No. 2)	-	-	-

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a ventilation system to service a common area specified in the table below, then that ventilation system must be of the type specified for that common area, and must meet the efficiency measure specified.		✔	✔
(b) In carrying out the development, the applicant must install, as the "primary type of artificial lighting" for each common area specified in the table below, the lighting specified for that common area. This lighting must meet the efficiency measure specified. The applicant must also install a centralised lighting control system or Building Management System (BMS) for the common area, where specified.		✔	✔
(c) The applicant must install the systems and fixtures specified in the "Central energy systems" column of the table below. In each case, the system or fixture must be of the type, and meet the specifications, listed for it in the table.	✔	✔	✔

	Common area ventilation system		Common area lighting		
Common area	Ventilation system type	Ventilation efficiency measure	Primary type of artificial lighting	Lighting efficiency measure	Lighting control system/ BMS
Lift bank (No. 1)	-	-	light-emitting diode	connected to lift call button	no
Basement car park area (B7-B4)	ventilation (supply + exhaust)	carbon monoxide monitor + VSD fan	light-emitting diode	time clock and motion sensors	no
B1 Coms/Telco Rooms	ventilation supply only	thermostatically controlled	light-emitting diode	manual on / manual off	no
B1 MSR	ventilation supply only	thermostatically controlled	light-emitting diode	manual on / manual off	no
B1 Substation	ventilation supply only	thermostatically controlled	light-emitting diode	manual on / manual off	no
B1 Residential Garbage Holding/Storage Room	ventilation exhaust only	-	light-emitting diode	manual on / manual off	no
B1 Bulky Goods Storage/ Rooms	ventilation exhaust only	-	light-emitting diode	manual on / manual off	no
GL GHR	ventilation exhaust only	-	light-emitting diode	manual on / manual off	no
B1 Main Chute Room	ventilation exhaust only	-	light-emitting diode	manual on / manual off	-
B3 EOT Hot Water Plant	ventilation supply only	none i.e., continuous	light-emitting diode	manual on / manual off	no
B2 Resi Pump Station	ventilation supply only	none i.e., continuous	light-emitting diode	manual on / manual off	no
B1 Grease Arrestors	ventilation exhaust only	none i.e., continuous	light-emitting diode	manual on / manual off	no
B1 Reused Rainwater Plant	ventilation supply only	none i.e., continuous	light-emitting diode	manual on / manual off	no
B1 Gas Plantroom	ventilation supply only	none i.e., continuous	light-emitting diode	manual on / manual off	no
B1 Cold Water Plantroom	ventilation supply only	none i.e., continuous	light-emitting diode	manual on / manual off	no
GL FCR	ventilation supply only	none i.e., continuous	light-emitting diode	manual on / manual off	no
B1 Stair Press Fan Room	ventilation exhaust only	none i.e., continuous	light-emitting diode	manual on / manual off	no

Common area	Common area ventilation system		Common area lighting		
	Ventilation system type	Ventilation efficiency measure	Primary type of artificial lighting	Lighting efficiency measure	Lighting control system/ BMS
Mezz Water Cooled Chiller Plantroom	ventilation supply only	thermostatically controlled	light-emitting diode	manual on / manual off	no
Mezz Hot Water Plant	ventilation supply only	none i.e., continuous	light-emitting diode	manual on / manual off	no
B1 Stair Press Fan Room	ventilation exhaust only	none i.e., continuous	light-emitting diode	manual on / manual off	no
Mezz Fire Services Water Storage Tank	ventilation supply only	none i.e., continuous	light-emitting diode	manual on / manual off	no
B1 Fire Hydrant/Sprinkler Pump Room	ventilation supply only	none i.e., continuous	light-emitting diode	manual on / manual off	no
B2 Supply Air Plant Room	ventilation supply only	none i.e., continuous	light-emitting diode	manual on / manual off	no
L3 Communal Amenities	ventilation exhaust only	time clock or BMS controlled	light-emitting diode	manual on / manual off	no
Garden Store	no mechanical ventilation	time clock or BMS controlled	light-emitting diode	manual on / manual off	no
GL Cleaner	no mechanical ventilation	-	light-emitting diode	manual on / manual off	no
B1 Car Park Exhaust Fan Room	ventilation exhaust only	none i.e., continuous	light-emitting diode	manual on / manual off	no
B1 Supply Air Plenum	ventilation supply only	none i.e., continuous	light-emitting diode	manual on / manual off	no
GI-L2 Amenities	ventilation exhaust only	time clock or BMS controlled	light-emitting diode	time clock and motion sensors	no
GL FCR	ventilation exhaust only	time clock or BMS controlled	light-emitting diode	manual on / manual off	no
Resi Lobby (GL)	ventilation supply only	time clock or BMS controlled	light-emitting diode	time clock and motion sensors	no
Basement Resi Lobbies (B7-B4, B1)	ventilation supply only	time clock or BMS controlled	light-emitting diode	time clock and motion sensors	no
Open Resi Lobbies (L3-L21)	no mechanical ventilation	-	light-emitting diode	time clock and motion sensors	no

Central energy systems	Type	Specification
Lift bank (No. 1)	gearless traction with V V V F motor	Number of levels (including basement): 25 number of levels from the bottom of the lift shaft to the top of the lift shaft: 30 number of lifts: 3 lift load capacity: >= 1001 kg but <= 1500kg
Central hot water system (No. 1)	gas-fired storage (manifolded)	Piping insulation (ringmain & supply risers): (a) Piping external to building: R1.0 (~38 mm); (b) Piping internal to building: R1.0 (~38 mm)

2. Commitments for multi-dwelling housing

(a) Dwellings

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must comply with the commitments listed below in carrying out the development of a dwelling listed in a table below.			
(b) The applicant must plant indigenous or low water use species of vegetation throughout the area of land specified for the dwelling in the "Indigenous species" column of the table below, as private landscaping for that dwelling. (This area of indigenous vegetation is to be contained within the "Area of garden and lawn" for the dwelling specified in the "Description of Project" table).	✓	✓	
(c) If a rating is specified in the table below for a fixture or appliance to be installed in the dwelling, the applicant must ensure that each such fixture and appliance meets the rating specified for it.		✓	✓
(d) The applicant must install an on demand hot water recirculation system which regulates all hot water use throughout the dwelling, where indicated for a dwelling in the "HW recirculation or diversion" column of the table below.		✓	✓
(e) The applicant must install: <ul style="list-style-type: none"> (aa) a hot water diversion system to all showers, kitchen sinks and all basins in the dwelling, where indicated for a dwelling in the "HW recirculation or diversion" column of the table below; and (bb) a separate diversion tank (or tanks) connected to the hot water diversion systems of at least 100 litres. The applicant must connect the hot water diversion tank to all toilets in the dwelling. 		✓ ✓	✓ ✓
(e) The applicant must not install a private swimming pool or spa for the dwelling, with a volume exceeding that specified for it in the table below.	✓	✓	
(f) If specified in the table, that pool or spa (or both) must have a pool cover or shading (or both).		✓	
(g) The pool or spa must be located as specified in the table.	✓	✓	
(h) The applicant must install, for the dwelling, each alternative water supply system, with the specified size, listed for that dwelling in the table below. Each system must be configured to collect run-off from the areas specified (excluding any area which supplies any other alternative water supply system), and to divert overflow as specified. Each system must be connected as specified.	✓	✓	✓
(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must comply with the commitments listed below in carrying out the development of a dwelling listed in a table below.			
(b) The applicant must install each hot water system specified for the dwelling in the table below, so that the dwelling's hot water is supplied by that system. If the table specifies a central hot water system for the dwelling, then the applicant must connect that central system to the dwelling, so that the dwelling's hot water is supplied by that central system.	✓	✓	✓
(c) The applicant must install, in each bathroom, kitchen and laundry of the dwelling, the ventilation system specified for that room in the table below. Each such ventilation system must have the operation control specified for it in the table.		✓	✓

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(d) The applicant must install the cooling and heating system/s specified for the dwelling under the "Living areas" and "Bedroom areas" headings of the "Cooling" and "Heating" columns in the table below, in/for at least 1 living/bedroom area of the dwelling. If no cooling or heating system is specified in the table for "Living areas" or "Bedroom areas", then no systems may be installed in any such areas. If the term "zoned" is specified beside an air conditioning system, then the system must provide for day/night zoning between living areas and bedrooms.		✓	✓
(e) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Artificial lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that the "primary type of artificial lighting" for each such room in the dwelling is fluorescent lighting or light emitting diode (LED) lighting. If the term "dedicated" is specified for a particular room or area, then the light fittings in that room or area must only be capable of being used for fluorescent lighting or light emitting diode (LED) lighting.		✓	✓
(f) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Natural lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that each such room or area is fitted with a window and/or skylight.	✓	✓	✓
(g) This commitment applies if the applicant installs a water heating system for the dwelling's pool or spa. The applicant must: (aa) install the system specified for the pool in the "Individual Pool" column of the table below (or alternatively must not install any system for the pool). If specified, the applicant must install a timer, to control the pool's pump; and (bb) install the system specified for the spa in the "Individual Spa" column of the table below (or alternatively must not install any system for the spa). If specified, the applicant must install a timer to control the spa's pump.		✓ ✓	
(h) The applicant must install in the dwelling: (aa) the kitchen cook-top and oven specified for that dwelling in the "Appliances & other efficiency measures" column of the table below; (bb) each appliance for which a rating is specified for that dwelling in the "Appliances & other efficiency measures" column of the table, and ensure that the appliance has that minimum rating; and (cc) any clothes drying line specified for the dwelling in the "Appliances & other efficiency measures" column of the table.		✓ ✓ ✓	✓
(i) If specified in the table, the applicant must carry out the development so that each refrigerator space in the dwelling is "well ventilated".		✓	
(iii) Thermal Performance and Materials	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must attach the certificate referred to under "Assessor details" on the front page of this BASIX certificate (the "Assessor Certificate") to the development application and construction certificate application for the proposed development (or, if the applicant is applying for a complying development certificate for the proposed development, to that application). The applicant must also attach the Assessor Certificate to the application for a final occupation certificate for the proposed development.			
(b) The Assessor Certificate must have been issued by an Accredited Assessor in accordance with the Thermal Comfort Protocol.			

(iii) Thermal Performance and Materials	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(c) The details of the proposed development on the Assessor Certificate must be consistent with the details shown in this BASIX Certificate, including the details shown in the "Thermal Loads" table below.			
(d) The applicant must show on the plans accompanying the development application for the proposed development, all matters which the Thermal Comfort Protocol requires to be shown on those plans. Those plans must bear a stamp of endorsement from the Accredited Assessor, to certify that this is the case.	✔		
(e) The applicant must show on the plans accompanying the application for a construction certificate (or complying development certificate, if applicable), all thermal performance specifications set out in the Assessor Certificate, and all aspects of the proposed development which were used to calculate those specifications.		✔	
(f) The applicant must construct the development in accordance with all thermal performance specifications set out in the Assessor Certificate, and in accordance with those aspects of the development application or application for a complying development certificate which were used to calculate those specifications.		✔	✔
(g) Where there is an in-slab heating or cooling system, the applicant must: (aa) Install insulation with an R-value of not less than 1.0 around the vertical edges of the perimeter of the slab; or (bb) On a suspended floor, install insulation with an R-value of not less than 1.0 underneath the slab and around the vertical edges of the perimeter of the slab.	✔	✔	✔
(h) The applicant must construct the floors and walls of the development in accordance with the specifications listed in the table below.	✔	✔	✔
(i) The applicant must show on The plans accompanying The development application for The proposed development, The locations of ceiling fans set out in The Assessor Certificate.	✔		
(j) The applicant must show on the plans accompanying the application for a construction certificate (or complying development certificate, if applicable), the locations of ceiling fans set out in the Assessor Certificate.		✔	

3. Commitments for single dwelling houses

(a) Dwellings

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must comply with the commitments listed below in carrying out the development of a dwelling listed in a table below.			
(b) The applicant must plant indigenous or low water use species of vegetation throughout the area of land specified for the dwelling in the "Indigenous species" column of the table below, as private landscaping for that dwelling. (This area of indigenous vegetation is to be contained within the "Area of garden and lawn" for the dwelling specified in the "Description of Project" table).	✔	✔	
(c) If a rating is specified in the table below for a fixture or appliance to be installed in the dwelling, the applicant must ensure that each such fixture and appliance meets the rating specified for it.		✔	✔
(d) The applicant must install an on demand hot water recirculation system which regulates all hot water use throughout the dwelling, where indicated for a dwelling in the "HW recirculation or diversion" column of the table below.		✔	✔
(e) The applicant must install: (aa) a hot water diversion system to all showers, kitchen sinks and all basins in the dwelling, where indicated for a dwelling in the "HW recirculation or diversion" column of the table below; and (bb) a separate diversion tank (or tanks) connected to the hot water diversion systems of at least 100 litres. The applicant must connect the hot water diversion tank to all toilets in the dwelling.		✔ ✔	✔ ✔
(e) The applicant must not install a private swimming pool or spa for the dwelling, with a volume exceeding that specified for it in the table below.	✔	✔	
(f) If specified in the table, that pool or spa (or both) must have a pool cover or shading (or both).		✔	
(g) The pool or spa must be located as specified in the table.	✔	✔	
(h) The applicant must install, for the dwelling, each alternative water supply system, with the specified size, listed for that dwelling in the table below. Each system must be configured to collect run-off from the areas specified (excluding any area which supplies any other alternative water supply system), and to divert overflow as specified. Each system must be connected as specified.	✔	✔	✔
(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must comply with the commitments listed below in carrying out the development of a dwelling listed in a table below.			
(b) The applicant must install each hot water system specified for the dwelling in the table below, so that the dwelling's hot water is supplied by that system. If the table specifies a central hot water system for the dwelling, then the applicant must connect that central system to the dwelling, so that the dwelling's hot water is supplied by that central system.	✔	✔	✔
(c) The applicant must install, in each bathroom, kitchen and laundry of the dwelling, the ventilation system specified for that room in the table below. Each such ventilation system must have the operation control specified for it in the table.		✔	✔

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(d) The applicant must install the cooling and heating system/s specified for the dwelling under the "Living areas" and "Bedroom areas" headings of the "Cooling" and "Heating" columns in the table below, in/for at least 1 living/bedroom area of the dwelling. If no cooling or heating system is specified in the table for "Living areas" or "Bedroom areas", then no systems may be installed in any such areas. If the term "zoned" is specified beside an air conditioning system, then the system must provide for day/night zoning between living areas and bedrooms.		✓	✓
(e) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Artificial lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that the "primary type of artificial lighting" for each such room in the dwelling is fluorescent lighting or light emitting diode (LED) lighting. If the term "dedicated" is specified for a particular room or area, then the light fittings in that room or area must only be capable of being used for fluorescent lighting or light emitting diode (LED) lighting.		✓	✓
(f) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Natural lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that each such room or area is fitted with a window and/or skylight.	✓	✓	✓
(g) This commitment applies if the applicant installs a water heating system for the dwelling's pool or spa. The applicant must: (aa) install the system specified for the pool in the "Individual Pool" column of the table below (or alternatively must not install any system for the pool). If specified, the applicant must install a timer, to control the pool's pump; and (bb) install the system specified for the spa in the "Individual Spa" column of the table below (or alternatively must not install any system for the spa). If specified, the applicant must install a timer to control the spa's pump.		✓ ✓	
(h) The applicant must install in the dwelling: (aa) the kitchen cook-top and oven specified for that dwelling in the "Appliances & other efficiency measures" column of the table below; (bb) each appliance for which a rating is specified for that dwelling in the "Appliances & other efficiency measures" column of the table, and ensure that the appliance has that minimum rating; and (cc) any clothes drying line specified for the dwelling in the "Appliances & other efficiency measures" column of the table.		✓ ✓ ✓	✓
(i) If specified in the table, the applicant must carry out the development so that each refrigerator space in the dwelling is "well ventilated".		✓	
(iii) Thermal Performance and Materials	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must attach the certificate referred to under "Assessor details" on the front page of this BASIX certificate (the "Assessor Certificate") to the development application and construction certificate application for the proposed development (or, if the applicant is applying for a complying development certificate for the proposed development, to that application). The applicant must also attach the Assessor Certificate to the application for a final occupation certificate for the proposed development.			
(b) The Assessor Certificate must have been issued by an Accredited Assessor in accordance with the Thermal Comfort Protocol.			

(iii) Thermal Performance and Materials	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(c) The details of the proposed development on the Assessor Certificate must be consistent with the details shown in this BASIX Certificate, including the details shown in the "Thermal Loads" table below.			
(d) The applicant must show on the plans accompanying the development application for the proposed development, all matters which the Thermal Comfort Protocol requires to be shown on those plans. Those plans must bear a stamp of endorsement from the Accredited Assessor, to certify that this is the case.	✔		
(e) The applicant must show on the plans accompanying the application for a construction certificate (or complying development certificate, if applicable), all thermal performance specifications set out in the Assessor Certificate, and all aspects of the proposed development which were used to calculate those specifications.		✔	
(f) The applicant must construct the development in accordance with all thermal performance specifications set out in the Assessor Certificate, and in accordance with those aspects of the development application or application for a complying development certificate which were used to calculate those specifications.		✔	✔
(g) Where there is an in-slab heating or cooling system, the applicant must: (aa) Install insulation with an R-value of not less than 1.0 around the vertical edges of the perimeter of the slab; or (bb) On a suspended floor, install insulation with an R-value of not less than 1.0 underneath the slab and around the vertical edges of the perimeter of the slab.	✔	✔	✔
(h) The applicant must construct the floors and walls of the development in accordance with the specifications listed in the table below.	✔	✔	✔
(i) The applicant must show on The plans accompanying The development application for The proposed development, The locations of ceiling fans set out in The Assessor Certificate.	✔		
(j) The applicant must show on the plans accompanying the application for a construction certificate (or complying development certificate, if applicable), the locations of ceiling fans set out in the Assessor Certificate.		✔	

4. Commitments for common areas and central systems/facilities for the development (non-building specific)

(b) Common areas and central systems/facilities

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a showerhead, toilet, tap or clothes washer into a common area, then that item must meet the specifications listed for it in the table.		✓	✓
(b) The applicant must install (or ensure that the development is serviced by) the alternative water supply system(s) specified in the "Central systems" column of the table below. In each case, the system must be sized, be configured, and be connected, as specified in the table.	✓	✓	✓
(c) A swimming pool or spa listed in the table must not have a volume (in kLs) greater than that specified for the pool or spa in the table.	✓	✓	
(d) A pool or spa listed in the table must have a cover or shading if specified for the pool or spa in the table.		✓	
(e) The applicant must install each fire sprinkler system listed in the table so that the system is configured as specified in the table.		✓	✓
(f) The applicant must ensure that the central cooling system for a cooling tower is configured as specified in the table.		✓	✓

Common area	Showerheads rating	Toilets rating	Taps rating	Clothes washers rating
All common areas	no common facility	4 star	4 star	no common laundry facility

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a ventilation system to service a common area specified in the table below, then that ventilation system must be of the type specified for that common area, and must meet the efficiency measure specified.		✓	✓
(b) In carrying out the development, the applicant must install, as the "primary type of artificial lighting" for each common area specified in the table below, the lighting specified for that common area. This lighting must meet the efficiency measure specified. The applicant must also install a centralised lighting control system or Building Management System (BMS) for the common area, where specified.		✓	✓
(c) The applicant must install the systems and fixtures specified in the "Central energy systems" column of the table below. In each case, the system or fixture must be of the type, and meet the specifications, listed for it in the table.	✓	✓	✓

Central energy systems	Type	Specification
Alternative energy supply	Photovoltaic system	Rated electrical output (min): 70.00 peak kW
Other	-	-

Notes

1. In these commitments, "applicant" means the person carrying out the development.
2. The applicant must identify each dwelling, building and common area listed in this certificate, on the plans accompanying any development application, and on the plans and specifications accompanying the application for a construction certificate / complying development certificate, for the proposed development, using the same identifying letter or reference as is given to that dwelling, building or common area in this certificate.
3. This note applies if the proposed development involves the erection of a building for both residential and non-residential purposes (or the change of use of a building for both residential and non-residential purposes). Commitments in this certificate which are specified to apply to a "common area" of a building or the development, apply only to that part of the building or development to be used for residential purposes.
4. If this certificate lists a central system as a commitment for a dwelling or building, and that system will also service any other dwelling or building within the development, then that system need only be installed once (even if it is separately listed as a commitment for that other dwelling or building).
5. If a star or other rating is specified in a commitment, this is a minimum rating.
6. All alternative water systems to be installed under these commitments (if any), must be installed in accordance with the requirements of all applicable regulatory authorities. NOTE: NSW Health does not recommend that stormwater, recycled water or private dam water be used to irrigate edible plants which are consumed raw, or that rainwater be used for human consumption in areas with potable water supply.

Legend

1. Commitments identified with a "✔" in the "Show on DA plans" column must be shown on the plans accompanying the development application for the proposed development (if a development application is to be lodged for the proposed development).
2. Commitments identified with a "✔" in the "Show on CC/CDC plans and specs" column must be shown in the plans and specifications accompanying the application for a construction certificate / complying development certificate for the proposed development.
3. Commitments identified with a "✔" in the "Certifier check" column must be certified by a certifying authority as having been fulfilled. (Note: a certifying authority must not issue an occupation certificate (either interim or final) for a building listed in this certificate, or for any part of such a building, unless it is satisfied that each of the commitments whose fulfilment it is required to monitor in relation to the building or part, has been fulfilled).

Nationwide House Energy Rating Scheme[®]

Class 2 Summary

NatHERS[®] Certificate No. 0009276110

Generated on 27 Aug 2024 using BERS Pro v5.2.0 (3.23)

Property

Address 391-423 Pacific Hwy ,
CROWS NEST , NSW , 2065

Lot/DP Lot DP 29672

NatHERS Climate Zone 56 Mascot (Sydney Airport)



Accredited assessor

Name Thien Huynh

Business name Windtech Consultants PTY LTD

Email Thien@windtechglobal.com

Phone (02) 9503 0307

Accreditation No. 20887

Assessor Accrediting Organisation
ABSA

Verification

To verify this certificate, scan the QR code or visit hstar.com.au/QR/Generate?p=IYcxyIMYL. When using either link, ensure you are visiting hstar.com.au



National Construction Code (NCC) requirements

The NCC allows the use of NatHERS accredited software to comply with the energy efficiency requirements for houses (Class 1 buildings) and apartments (Class 2 sole-occupancy units and Class 4 parts of buildings). The applicable requirements for houses are detailed in Specification 42 of NCC Volume Two. For apartments the requirements are detailed in clauses J3D3 and J3D15 of NCC Volume One.

NCC 2022 includes enhanced thermal performance requirements for houses and apartments. It also includes a new whole-of-home annual energy use budget which applies to the major equipment in the home.

The NCC, and associated ABCB Standards and support material, can be accessed at www.abcb.gov.au.

Note, variations and additions to the NCC energy efficiency requirements may apply in some states and territories.

Summary of all dwellings

Certificate number and link	Unit Number	Heating load (load limit) [MJ/m ² /p.a.]	Cooling load (load limit) [MJ/m ² /p.a.]	Total load [MJ/m ² /p.a.]	Star Rating	Whole of Home Rating
0009274192-03	301	9.9 (N/A)	12.0 (N/A)	21.9	7.9	0
0009274226-02	302	7.3 (N/A)	14.7 (N/A)	22.0	7.9	0

Thermal performance Star rating



NATIONWIDE HOUSE
ENERGY RATING SCHEME[®]

The rating above is the average of all dwellings in this summary.

For more information on your dwelling's rating see:
www.nathers.gov.au

NCC heating and cooling maximum loads (MJ/m²/p.a.)

Limits taken from ABCB Standard 2022

	Heating	Cooling
Modelled block average	19.6	9.1
Maximum block limit	N/A	N/A

Whole of Home performance rating

No Whole of Home performance rating conducted for this summary certificate
OR
not completed for all dwellings



Summary of all dwellings (continued)

Certificate number and link	Unit Number	Heating load (load limit) [MJ/m ² /p.a.]	Cooling load (load limit) [MJ/m ² /p.a.]	Total load [MJ/m ² /p.a.]	Star Rating	Whole of Home Rating
0009274242-02	303	9.1 (N/A)	14.6 (N/A)	23.7	7.7	0
0009274317-02	401	28.7 (N/A)	8.5 (N/A)	37.1	6.1	0
0009274184-02	402	21.5 (N/A)	10.4 (N/A)	32.0	6.8	0
0009274218-02	403	21.5 (N/A)	10.4 (N/A)	32.0	6.8	0
0009274259-02	404	27.6 (N/A)	7.2 (N/A)	34.8	6.4	0
0009274275-02	405	20.2 (N/A)	12.2 (N/A)	32.4	6.7	0
0009274309-02	406	19.2 (N/A)	5.3 (N/A)	24.5	7.6	0
0009274200-02	407	14.0 (N/A)	5.8 (N/A)	19.8	8.1	0
0009274234-02	408	15.5 (N/A)	6.5 (N/A)	22.0	7.9	0
0009274267-02	409	11.9 (N/A)	6.9 (N/A)	18.8	8.2	0
0009274291-02	410	16.1 (N/A)	9.1 (N/A)	25.2	7.4	0
0009274325-02	411	13.5 (N/A)	10.4 (N/A)	23.9	7.6	0
0009274358-02	412	18.1 (N/A)	10.8 (N/A)	28.9	7.1	0
0009274390-02	501	28.2 (N/A)	8.5 (N/A)	36.6	6.2	0
0009274424-02	502	20.3 (N/A)	11.7 (N/A)	32.0	6.8	0
0009274457-02	503	20.3 (N/A)	11.7 (N/A)	32.0	6.8	0
0009274481-02	504	24.8 (N/A)	8.8 (N/A)	33.6	6.6	0
0009274515-02	505	21.0 (N/A)	13.2 (N/A)	34.2	6.4	0
0009274549-02	506	16.4 (N/A)	6.2 (N/A)	22.6	7.8	0
0009274572-02	507	13.6 (N/A)	6.7 (N/A)	20.3	8.1	0
0009274606-02	508	14.6 (N/A)	7.3 (N/A)	21.9	7.9	0
0009274648-02	509	10.9 (N/A)	8.4 (N/A)	19.3	8.2	0
0009274671-02	510	18.4 (N/A)	9.1 (N/A)	27.4	7.3	0
0009274713-02	511	15.6 (N/A)	10.0 (N/A)	25.6	7.4	0
0009274747-02	512	20.5 (N/A)	10.2 (N/A)	30.8	6.9	0
0009274770-02	601	28.5 (N/A)	9.0 (N/A)	37.5	6.1	0
0009274804-02	602	20.6 (N/A)	11.8 (N/A)	32.4	6.7	0
0009274838-02	603	20.6 (N/A)	11.8 (N/A)	32.4	6.7	0
0009274861-02	604	25.1 (N/A)	8.8 (N/A)	33.9	6.5	0
0009274903-02	605	21.3 (N/A)	13.3 (N/A)	34.6	6.4	0
0009274937-02	606	16.7 (N/A)	6.1 (N/A)	22.8	7.8	0
0009274960-02	607	13.7 (N/A)	6.9 (N/A)	20.6	8	0
0009274994-02	608	14.8 (N/A)	7.4 (N/A)	22.2	7.9	0
0009275033-02	609	11.0 (N/A)	8.4 (N/A)	19.4	8.2	0



<u>0009275066-02</u>	610	18.6 (N/A)	8.8 (N/A)	27.4	7.3	0
<u>0009275116-02</u>	611	15.8 (N/A)	9.9 (N/A)	25.8	7.4	0
<u>0009275140-02</u>	612	20.8 (N/A)	10.4 (N/A)	31.2	6.9	0
<u>0009275181-02</u>	701	28.8 (N/A)	8.9 (N/A)	37.7	6	0
<u>0009275215-02</u>	702	20.9 (N/A)	11.5 (N/A)	32.5	6.7	0
<u>0009275231-02</u>	703	20.9 (N/A)	11.5 (N/A)	32.5	6.7	0
<u>0009275272-02</u>	704	25.4 (N/A)	8.8 (N/A)	34.2	6.4	0
<u>0009275298-02</u>	705	21.4 (N/A)	13.3 (N/A)	34.6	6.4	0
<u>0009275322-02</u>	706	17.0 (N/A)	6.0 (N/A)	23.0	7.8	0
<u>0009275363-02</u>	707	13.9 (N/A)	7.0 (N/A)	20.9	8	0
<u>0009275397-02</u>	708	15.0 (N/A)	7.4 (N/A)	22.4	7.8	0
<u>0009275439-02</u>	709	11.2 (N/A)	8.2 (N/A)	19.4	8.2	0
<u>0009275462-02</u>	710	18.9 (N/A)	8.9 (N/A)	27.8	7.2	0
<u>0009275496-02</u>	711	16.1 (N/A)	10.1 (N/A)	26.2	7.4	0
<u>0009275520-02</u>	712	21.1 (N/A)	10.5 (N/A)	31.6	6.8	0
<u>0009275561-02</u>	801	29.1 (N/A)	8.5 (N/A)	37.7	6	0
<u>0009275595-02</u>	802	21.4 (N/A)	11.8 (N/A)	33.1	6.6	0
<u>0009275629-02</u>	803	21.2 (N/A)	11.6 (N/A)	32.8	6.7	0
<u>0009275652-02</u>	804	25.7 (N/A)	8.8 (N/A)	34.5	6.4	0
<u>0009275686-02</u>	805	21.7 (N/A)	13.2 (N/A)	34.9	6.4	0
<u>0009275710-02</u>	806	17.3 (N/A)	5.8 (N/A)	23.1	7.7	0
<u>0009275751-02</u>	807	14.1 (N/A)	7.0 (N/A)	21.1	7.9	0
<u>0009275785-02</u>	808	15.2 (N/A)	7.2 (N/A)	22.3	7.8	0
<u>0009275827-02</u>	809	11.3 (N/A)	8.3 (N/A)	19.6	8.1	0
<u>0009275868-02</u>	810	19.2 (N/A)	8.9 (N/A)	28.0	7.2	0
<u>0009275892-02</u>	811	16.3 (N/A)	10.0 (N/A)	26.4	7.4	0
<u>0009275926-02</u>	812	21.3 (N/A)	10.3 (N/A)	31.7	6.8	0
<u>0009275942-02</u>	901	27.3 (N/A)	8.8 (N/A)	36.1	6.2	0
<u>0009275967-02</u>	902	22.8 (N/A)	11.6 (N/A)	34.4	6.4	0
<u>0009275983-02</u>	903	26.0 (N/A)	8.8 (N/A)	34.8	6.4	0
<u>0009278375-02</u>	904	21.8 (N/A)	13.3 (N/A)	35.1	6.4	0
<u>0009276023-02</u>	905	17.6 (N/A)	5.8 (N/A)	23.4	7.7	0
<u>0009276049-02</u>	906	14.3 (N/A)	7.0 (N/A)	21.3	7.9	0
<u>0009276064-02</u>	907	15.3 (N/A)	7.4 (N/A)	22.8	7.8	0
<u>0009276072-02</u>	908	11.5 (N/A)	8.2 (N/A)	19.7	8.1	0
<u>0009276080-02</u>	909	19.4 (N/A)	8.8 (N/A)	28.2	7.2	0
<u>0009276098-02</u>	910	16.6 (N/A)	9.9 (N/A)	26.5	7.4	0
<u>0009274341-02</u>	911	21.6 (N/A)	10.2 (N/A)	31.9	6.8	0



<u>0009274374-02</u>	1001	27.5 (N/A)	9.1 (N/A)	36.6	6.2	0
<u>0009274408-02</u>	1002	22.2 (N/A)	11.9 (N/A)	34.2	6.4	0
<u>0009274432-02</u>	1003	26.2 (N/A)	8.8 (N/A)	35.0	6.4	0
<u>0009278383-02</u>	1004	22.0 (N/A)	13.3 (N/A)	35.2	6.4	0
<u>0009274499-02</u>	1005	17.6 (N/A)	5.7 (N/A)	23.3	7.7	0
<u>0009274531-02</u>	1006	14.4 (N/A)	7.1 (N/A)	21.5	7.9	0
<u>0009274564-02</u>	1007	15.4 (N/A)	7.3 (N/A)	22.7	7.8	0
<u>0009274598-02</u>	1008	11.6 (N/A)	8.2 (N/A)	19.7	8.1	0
<u>0009274630-02</u>	1009	19.5 (N/A)	8.7 (N/A)	28.3	7.2	0
<u>0009274663-02</u>	1010	16.7 (N/A)	9.9 (N/A)	26.6	7.3	0
<u>0009274697-02</u>	1011	21.8 (N/A)	10.3 (N/A)	32.1	6.7	0
<u>0009274721-02</u>	1101	27.8 (N/A)	8.9 (N/A)	36.7	6.2	0
<u>0009274754-02</u>	1102	22.4 (N/A)	11.8 (N/A)	34.2	6.4	0
<u>0009274788-02</u>	1103	26.5 (N/A)	8.8 (N/A)	35.2	6.4	0
<u>0009278417-02</u>	1104	22.2 (N/A)	12.9 (N/A)	35.2	6.4	0
<u>0009274846-02</u>	1105	18.1 (N/A)	5.9 (N/A)	24.0	7.6	0
<u>0009274887-02</u>	1106	14.6 (N/A)	7.1 (N/A)	21.7	7.9	0
<u>0009274911-02</u>	1107	15.6 (N/A)	7.3 (N/A)	22.9	7.8	0
<u>0009274945-02</u>	1108	11.6 (N/A)	8.3 (N/A)	19.9	8.1	0
<u>0009274986-02</u>	1109	19.8 (N/A)	8.7 (N/A)	28.5	7.2	0
<u>0009275017-02</u>	1110	17.0 (N/A)	10.0 (N/A)	27.0	7.3	0
<u>0009275041-02</u>	1111	22.0 (N/A)	10.2 (N/A)	32.2	6.7	0
<u>0009275074-02</u>	1201	27.9 (N/A)	9.1 (N/A)	37.0	6.1	0
<u>0009275090-02</u>	1202	22.5 (N/A)	11.9 (N/A)	34.4	6.4	0
<u>0009275124-02</u>	1203	26.6 (N/A)	8.9 (N/A)	35.5	6.3	0
<u>0009278441-02</u>	1204	21.1 (N/A)	13.3 (N/A)	34.4	6.4	0
<u>0009275173-02</u>	1205	19.5 (N/A)	5.4 (N/A)	24.9	7.5	0
<u>0009275207-02</u>	1206	14.7 (N/A)	7.0 (N/A)	21.7	7.9	0
<u>0009275249-02</u>	1207	15.7 (N/A)	7.3 (N/A)	22.9	7.8	0
<u>0009275264-02</u>	1208	11.7 (N/A)	8.3 (N/A)	20.0	8.1	0
<u>0009275306-02</u>	1209	20.3 (N/A)	8.3 (N/A)	28.6	7.1	0
<u>0009275330-02</u>	1210	16.4 (N/A)	9.8 (N/A)	26.2	7.4	0
<u>0009275371-02</u>	1211	22.2 (N/A)	10.1 (N/A)	32.3	6.7	0
<u>0009275405-02</u>	1301	28.1 (N/A)	9.4 (N/A)	37.4	6.1	0
<u>0009275421-02</u>	1302	22.6 (N/A)	11.8 (N/A)	34.5	6.4	0
<u>0009275454-02</u>	1303	26.7 (N/A)	8.8 (N/A)	35.5	6.3	0
<u>0009278474-02</u>	1304	17.1 (N/A)	11.7 (N/A)	28.8	7.1	0
<u>0009275512-02</u>	1305	14.7 (N/A)	7.1 (N/A)	21.8	7.9	0



<u>0009275546-02</u>	1306	15.8 (N/A)	7.2 (N/A)	23.0	7.8	0
<u>0009275579-02</u>	1307	13.1 (N/A)	8.5 (N/A)	21.6	7.9	0
<u>0009275603-02</u>	1308	18.8 (N/A)	8.0 (N/A)	26.8	7.3	0
<u>0009275645-02</u>	1309	21.7 (N/A)	7.8 (N/A)	29.5	7.1	0
<u>0009275736-02</u>	1401	28.4 (N/A)	9.2 (N/A)	37.5	6.1	0
<u>0009275769-02</u>	1402	22.6 (N/A)	11.8 (N/A)	34.5	6.4	0
<u>0009275793-02</u>	1403	27.0 (N/A)	8.9 (N/A)	35.9	6.3	0
<u>0009278359-02</u>	1404	16.5 (N/A)	11.8 (N/A)	28.2	7.2	0
<u>0009275850-02</u>	1405	14.8 (N/A)	7.1 (N/A)	21.9	7.9	0
<u>0009275884-02</u>	1406	16.0 (N/A)	7.2 (N/A)	23.2	7.7	0
<u>0009275918-02</u>	1407	13.4 (N/A)	8.4 (N/A)	21.8	7.9	0
<u>0009275934-02</u>	1408	17.9 (N/A)	8.1 (N/A)	26.1	7.4	0
<u>0009275959-02</u>	1409	20.7 (N/A)	7.8 (N/A)	28.5	7.2	0
<u>0009275975-02</u>	1501	28.5 (N/A)	9.2 (N/A)	37.7	6	0
<u>0009275991-02</u>	1502	22.7 (N/A)	11.8 (N/A)	34.5	6.4	0
<u>0009276015-02</u>	1503	27.2 (N/A)	8.7 (N/A)	35.9	6.3	0
<u>0009278391-02</u>	1504	16.6 (N/A)	11.8 (N/A)	28.4	7.2	0
<u>0009276056-02</u>	1505	15.0 (N/A)	7.1 (N/A)	22.0	7.9	0
<u>0009274333-02</u>	1506	16.1 (N/A)	7.3 (N/A)	23.4	7.7	0
<u>0009274366-02</u>	1507	13.4 (N/A)	8.4 (N/A)	21.9	7.9	0
<u>0009274382-02</u>	1508	18.0 (N/A)	8.2 (N/A)	26.2	7.4	0
<u>0009274416-02</u>	1509	20.8 (N/A)	8.0 (N/A)	28.8	7.1	0
<u>0009274440-02</u>	1601	28.6 (N/A)	9.2 (N/A)	37.8	6	0
<u>0009274473-02</u>	1602	22.8 (N/A)	11.8 (N/A)	34.7	6.4	0
<u>0009274507-02</u>	1603	27.3 (N/A)	8.7 (N/A)	36.0	6.3	0
<u>0009278425-02</u>	1604	16.7 (N/A)	11.9 (N/A)	28.6	7.1	0
<u>0009274556-02</u>	1605	15.0 (N/A)	7.1 (N/A)	22.1	7.9	0
<u>0009274580-02</u>	1606	16.2 (N/A)	7.4 (N/A)	23.6	7.7	0
<u>0009274614-02</u>	1607	13.5 (N/A)	8.4 (N/A)	21.9	7.9	0
<u>0009274622-02</u>	1608	18.2 (N/A)	8.1 (N/A)	26.3	7.4	0
<u>0009274655-02</u>	1609	20.9 (N/A)	7.8 (N/A)	28.8	7.1	0
<u>0009274689-02</u>	1701	28.6 (N/A)	8.9 (N/A)	37.4	6.1	0
<u>0009274705-02</u>	1702	23.0 (N/A)	11.7 (N/A)	34.7	6.4	0
<u>0009274739-02</u>	1703	27.5 (N/A)	8.8 (N/A)	36.2	6.2	0
<u>0009278458-02</u>	1704	16.8 (N/A)	11.4 (N/A)	28.2	7.2	0
<u>0009274796-02</u>	1705	15.0 (N/A)	7.1 (N/A)	22.1	7.9	0
<u>0009274820-02</u>	1706	16.2 (N/A)	7.5 (N/A)	23.7	7.7	0
<u>0009274853-02</u>	1707	13.6 (N/A)	8.4 (N/A)	22.0	7.9	0



<u>0009274879-02</u>	1708	18.3 (N/A)	8.1 (N/A)	26.4	7.4	0
<u>0009274895-02</u>	1709	21.1 (N/A)	7.8 (N/A)	28.9	7.1	0
<u>0009274929-02</u>	1801	28.7 (N/A)	9.0 (N/A)	37.7	6	0
<u>0009274952-02</u>	1802	23.1 (N/A)	11.7 (N/A)	34.8	6.4	0
<u>0009274978-02</u>	1803	27.6 (N/A)	8.8 (N/A)	36.4	6.2	0
<u>0009278482-02</u>	1804	16.9 (N/A)	11.8 (N/A)	28.7	7.1	0
<u>0009275025-02</u>	1805	15.1 (N/A)	7.2 (N/A)	22.3	7.8	0
<u>0009275058-02</u>	1806	16.2 (N/A)	7.4 (N/A)	23.6	7.7	0
<u>0009275082-02</u>	1807	13.6 (N/A)	8.5 (N/A)	22.2	7.9	0
<u>0009275108-02</u>	1808	18.4 (N/A)	8.2 (N/A)	26.6	7.3	0
<u>0009275132-02</u>	1809	21.2 (N/A)	7.8 (N/A)	29.0	7.1	0
<u>0009275165-02</u>	1901	28.9 (N/A)	9.1 (N/A)	38.0	6	0
<u>0009275199-02</u>	1902	23.3 (N/A)	11.7 (N/A)	35.0	6.4	0
<u>0009275223-02</u>	1903	27.7 (N/A)	8.6 (N/A)	36.3	6.2	0
<u>0009278367-02</u>	1904	17.0 (N/A)	11.9 (N/A)	28.9	7.1	0
<u>0009275280-02</u>	1905	15.1 (N/A)	7.2 (N/A)	22.3	7.8	0
<u>0009275314-02</u>	1906	16.3 (N/A)	7.4 (N/A)	23.7	7.7	0
<u>0009275348-02</u>	1907	13.7 (N/A)	8.5 (N/A)	22.3	7.8	0
<u>0009275355-02</u>	1908	18.5 (N/A)	8.1 (N/A)	26.7	7.3	0
<u>0009275389-02</u>	1909	21.3 (N/A)	7.9 (N/A)	29.2	7.1	0
<u>0009275413-02</u>	2001	29.0 (N/A)	9.0 (N/A)	38.0	6	0
<u>0009275447-02</u>	2002	23.3 (N/A)	11.7 (N/A)	35.0	6.4	0
<u>0009275470-02</u>	2003	27.9 (N/A)	8.6 (N/A)	36.5	6.2	0
<u>0009278433-02</u>	2004	17.1 (N/A)	11.8 (N/A)	28.9	7.1	0
<u>0009275538-02</u>	2005	15.1 (N/A)	7.2 (N/A)	22.3	7.8	0
<u>0009275553-02</u>	2006	16.4 (N/A)	7.5 (N/A)	23.9	7.6	0
<u>0009275587-02</u>	2007	13.8 (N/A)	8.5 (N/A)	22.3	7.8	0
<u>0009275611-02</u>	2008	18.7 (N/A)	8.2 (N/A)	26.8	7.3	0
<u>0009275637-02</u>	2009	21.3 (N/A)	7.9 (N/A)	29.2	7.1	0
<u>0009275660-02</u>	2101	28.7 (N/A)	7.7 (N/A)	36.4	6.2	0
<u>0009275694-02</u>	2102	23.3 (N/A)	9.8 (N/A)	33.0	6.6	0
<u>0009275728-02</u>	2103	25.9 (N/A)	7.7 (N/A)	33.6	6.6	0
<u>0009278466-02</u>	2104	21.8 (N/A)	10.2 (N/A)	32.0	6.8	0
<u>0009275777-02</u>	2105	18.5 (N/A)	6.2 (N/A)	24.7	7.5	0
<u>0009275801-02</u>	2106	20.8 (N/A)	6.6 (N/A)	27.4	7.3	0
<u>0009275835-02</u>	2107	17.8 (N/A)	6.9 (N/A)	24.7	7.5	0
<u>0009275843-02</u>	2108	27.2 (N/A)	6.7 (N/A)	33.8	6.5	0
<u>0009275876-02</u>	2109	30.6 (N/A)	6.6 (N/A)	37.2	6.1	0



Explanatory notes

About this ratings

The thermal performance star rating in this Certificate is the average rating of all NCC Class 2 dwellings in an apartment block. Individual unit ratings are listed in the 'Summary of all dwellings' section of this Certificate.

NatHERS ratings use computer modelling to evaluate a home's energy efficiency and performance. They use localised climate data and standard assumptions on how people use their home to predict the energy loads and societal cost. The thermal performance star rating uses the home's building specifications, layout, orientation and fabric (i.e. walls, windows, floors, roofs and ceilings) to predict the heating and cooling energy loads.

For more details about an individual dwelling's assessment, refer to the individual dwelling's NatHERS Certificate (accessible via link).

Accredited Assessors

For high quality NatHERS Certificates, always use an accredited or licenced assessor registered with an Assessor Accrediting Organisation (AAO). AAOs have strict quality assurance processes, and professional development requirements ensuring consistently high standards for assessments.

Non-accredited assessors (Raters) have no ongoing training requirements and are not quality assured.

Licensed assessors in the Australian Capital Territory (ACT) can produce assessments for regulatory purposes only, using endorsed software, as listed on the ACT licensing register.

Any queries about this report should be directed to the assessor. If the assessor is unable to address questions or concerns, contact the AAO specified on the front of this certificate.

Disclaimer

The NatHERS Certificate format is developed by the NatHERS Administrator. However, the content in certificates is entered by the assessor. It is the assessor's responsibility to use NatHERS accredited software correctly and follow the NatHERS Technical Note to produce a NatHERS Certificate.

The predicted annual energy use, cost and greenhouse gas emissions in this NatHERS Certificate are an estimate based on an assessment of the dwelling's design by the assessor. It is not a prediction of actual energy use, cost or emissions. The information and ratings may be used to compare how other dwellings are likely to perform when used in a similar way.

Information presented in this report relies on a range of standard assumptions (both embedded in NatHERS accredited software and made by the assessor who prepared this report), including assumptions about occupancy, behaviour, appliance performance, indoor air temperature and local climate.

Not all assumptions made by the assessor while using the NatHERS accredited software tool are presented in this report and further details or data files may be available from the assessor.