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NatHERS and BASIX Assessment



Centurion Group Proposed Residential Development

To be built at 181 Allambie Road, Allambie Heights NSW 2100

Issue	File Ref	Description	Author	Date
A	18-0775	NatHERS and BASIX Assessment	AM	22.06.2018
B	20-0081	BASIX Assessment update to reflect new plans	AM	18.02.2020

This report has been prepared by Efficient Living Pty Ltd on behalf of our client Centurion Group. Efficient Living prepares all reports in accordance with the BASIX Thermal Comfort Protocol and is backed by professional indemnity insurance. This report takes into account our client's instructions and preferred building inclusions.



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Introduction

Efficient Living has investigated the estimated thermal comfort, water and energy usage of the proposed development to be built at 181 Allambie Road, Allambie Heights.

Heating and cooling loads for the development have been determined using BERS Pro Plus 4.3 thermal comfort simulation software. The report is based on the architectural drawings provided by Centurion Group. For further details, refer to the individual BASIX certificates(s) and Efficient Living's inclusions summary respectively.

This report is based on the following plans prepared by Jackson Teece: DA-000, DA-010, DA-011, DA-013, DA-014, DA-015, DA-100, DA-101, DA-102, DA-103, DA-104, DA-105, DA-200, DA-201, DA-300, DA-302 and DA-600.

Analysis

The BASIX assessment is divided into three sections, each independently measuring the efficiency of the development. These are Water, Thermal Comfort and Energy.

BASIX requires a minimum target of 40% for the water section, a pass or fail is required for the thermal comfort section and a minimum required target of 45% for the energy section.

Water

The proposed development has achieved the BASIX Water target of 40%.

The water usage of the development is calculated based on the number and efficiency of permanent fixtures and appliances such as taps, showerheads and toilets, the dish washer and clothes washing machine.

The size of the rain tank and number of connections can have a significant impact on your water score as does the area of gardens and lawns and whether or not low water plant species are incorporated.

Thermal Comfort

Thermal Comfort targets are set by the Department of Planning in the form of heating and cooling caps. The buildings thermal physics is measured using BERS Pro Plus V4.3 thermal comfort simulation software. This calculates the expected level of energy required to heat and cool each dwelling per annum, expressed in MJ (megajoules) per square meter of floor area.



Each unit has individual heating and cooling caps applied. Accompanying these individual caps are average heating and cooling caps applied to the whole development. The average caps are lower, or harder to comply with, than the individual unit caps.

Energy

The proposed development has achieved the energy target of 45% to pass this section.

The energy usage of the development is calculated based on the efficiency of fixed appliances that will be used. This includes the air conditioning system, hot water system, lighting, exhaust fans, cook top, oven, and clothes drying facilities.

Inclusions summary

The inclusions as outlined below have been incorporated in each unit to allow them to reach their environmental sustainability targets.

Thermal Comfort

Average heating loads are 32% below allowable BASIX targets.

Average cooling loads are 26% below allowable BASIX targets.

Glazing Doors/Windows

Aluminium framed single clear glazing to building A:

A – awning/bi-fold windows + hinged glazed doors and B – sliding doors/windows + fixed glazing + louvres windows

U-Value: 6.70 (equal to or lower than) SHGC: 0.70 (±10%)

Aluminium Low-e single clear glazing to building B:

A – awning/bi-fold windows + hinged glazed doors and B – sliding doors/windows + fixed glazing + louvre windows

U-Value: 5.40 (equal to or lower than) SHGC: 0.58 (±10%)

Given values are AFRC, total window system values (glass and frame)

NOTE: Openability modelled as per BASIX Thermal Protocol - 4.14.2 and NatHERS Technical Note 1.2 - 10.11 with regard to restricted openings.



Roof

Metal roof with a foil backed blanket (Minimum R1.3 up and R1.3 down)

External Colour

Default medium colour modelled ($0.475 < SA < 0.7$)

Ceiling

Plasterboard ceiling with a minimum R2.5 insulation (insulation only value) where roof is over

Ceiling Penetrations

Loss of ceiling insulation has been accounted for in accordance with BASIX Thermal Protocol 4.13.1 and NatHERS Technical Note 1.2

Assumed sealed LED downlights every $1/2.5m^2$

External Wall

Concrete block internally lined with plasterboard, R2.0 bulk insulation (insulation only value)

External Colour

Medium colour modelled ($0.475 < SA < 0.7$)

Inter tenancy walls

Concrete to walls adjacent to neighbours, no insulation required

Concrete blocks to walls adjacent to hallways with a minimum R1.2 insulation (insulation only value).

Concrete blocks with furring channel and plasterboard lining to all walls adjacent to lift shafts and fire stairs. R1.2 insulation (insulation only value)

Walls within dwellings

Plasterboard on studs - no insulation

Floors

Concrete with a minimum R0.9 insulation (insulation only value) required to units with garage below.

Concrete between levels no insulation required.



Floor coverings

Tiles to wet areas and carpet elsewhere;

External Shading

Overhangs as per stamped documentation

Fixed exterior vertical screens as per plans and elevations

BASIX water inclusions

Score 41/40

Fixtures within units

Showerheads: Mid flow (>6L but <=7.5 L/min)

Toilets: 4.0 star

Kitchen taps: 5.0 star

Bathroom vanity taps: 5.0 star

Fixtures within common areas

Toilets: 5.0 star

Taps: 5.0 star

Appliances within units

Dishwashers: 4.0 star

Clothes washer: 2.5 star

Central rainwater storage

Tank size: 10,000L

Collecting from 3000m² roof area

Connected to outdoor tap for irrigation of common and private landscaping.

BASIX energy inclusions



Score 40/40

Hot water system

Individual gas instantaneous system – min. 6 star

Lift motors

All lifts to have gearless traction with VVVF motor

Appliances & other efficiency measures within units

Gas cooktop & electric oven

Dishwashers: 3.0 star

Clothes dryers: 3.0 star

Clothes Dryer: 2.5 star

Refrigerator: 2 star

Well ventilated fridge space

Heating and cooling within units

All units to have individual, single phase, reverse cycle air conditioning to living areas, and at least 1 bedroom

A minimum efficiency of EER 3.0-3.5 stars is required for cooling; and

A minimum efficiency of EER 3.5-4.0 stars is required for heating.

Day/Night zoning is also required

Artificial lighting within units

All light fittings within each room are to have LED fixtures installed

Ventilation within units

Bathroom – Individual fan, ducted to roof or fascade – manual on / manual off switch

Laundry – Individual fan, ducted to roof or fascade – manual on / manual off switch

Kitchen range hood – Individual fan, not ducted – manual on / manual off switch

Ventilation to common areas



Car park area - Naturally ventilated only;

Bin room - Exhaust air only, running continuously;

Switch Room - Supply air only, running continuously;

(Please note: Any air-conditioned commons areas that are not exclusive to residents must comply with NCC Section J glazing and insulation requirements. Independent reports should be requested prior to CC if relevant)

Artificial lighting to common areas

Car park area - Fluorescent lights with zoned switching and motion sensors

Lifts - LED lights connected to lift call button

Bin room - Fluorescent lights with motion sensor

Switch room - LED lights, with manual on / manual off switch

Alternative energy

Central photovoltaic system with a minimum output of 6 kW

Thermal Comfort Results
Proposed Residential Development



181 Allambie Road
Allambie Heights NSW 2100

Issued in accordance with BASIX Thermal Comfort Simulation Method

Certificate # 0002879440				Accreditation # VIC/BDAV/12/1473			
Thermal performance specifications							
Unit number	Number of Bedrooms	Floor area (M ²)		Predict. loads (MJ/M ² /y)		Star Rating	Thermal Comfort Upgrades
		Con.	Uncon.	Heat	Cool (Sens & Lat)		
Building A							
1	2	126	0	40	20.7	5.4	None - see base file inclusions in overview
2	2	126	0	34.5	19.5	5.8	None - see base file inclusions in overview
3	2	126	0	34.8	19.6	5.8	None - see base file inclusions in overview
4	2	126	0	41.9	20.2	5.3	None - see base file inclusions in overview
5	2	126	0	38.4	26.9	5.1	None - see base file inclusions in overview
6	2	126	0	34.6	26.4	5.4	None - see base file inclusions in overview
7	2	126	0	34.3	25.5	5.4	None - see base file inclusions in overview
8	2	126	0	38.5	27.7	4.9	None - see base file inclusions in overview
Building B							
9	2	126.6	0	25.9	12.5	7.1	None - see base file inclusions in overview
10	2	126.6	0	17.5	13.8	7.6	None - see base file inclusions in overview
11	2	126.6	0	19.5	12.2	7.5	None - see base file inclusions in overview
12	2	126.6	0	18.3	13.4	7.5	None - see base file inclusions in overview
13	2	126.6	0	18.3	13	7.6	None - see base file inclusions in overview
14	2	126.6	0	18	13.9	7.5	None - see base file inclusions in overview
15	2	126.6	0	18.1	15	7.4	None - see base file inclusions in overview
16	2	126.6	0	24.5	14.2	7	None - see base file inclusions in overview
17	2	126.6	0	29.8	18.4	6.3	None - see base file inclusions in overview
18	2	126.6	0	20.6	23.3	6.6	None - see base file inclusions in overview
19	2	126.6	0	26.4	18.3	6.5	None - see base file inclusions in overview
20	2	126.6	0	19.9	23.9	6.6	None - see base file inclusions in overview
21	2	126.6	0	25.9	18.8	6.5	None - see base file inclusions in overview
22	2	126.6	0	21	23.2	6.6	None - see base file inclusions in overview
23	2	126.6	0	26.2	19.8	6.4	None - see base file inclusions in overview
24	2	126.6	0	24	23.3	6.4	None - see base file inclusions in overview