

Thermal Comfort & BASIX Assessment

**BUILDING
SUSTAINABILITY
CONSULTANTS**



■ FRIENDLY ■ INFORMATIVE ■ EFFICIENT ■ KNOWLEDGEABLE

Ausbao Pty Ltd

Development application for:

House Lot 3 - Avon Road

Issue	File Ref	Description	Author	Date
A	9348	Original Thermal Comfort Assessment	PV	10/08/15

This report has been prepared by Efficient Living Pty Ltd on behalf of our client Marchese Partners. 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.



This home has been assessed under the thermal simulation method of the BASIX Protocol

Assessor	Tracey Cools
Accreditation Number	VIC/BDAV/12/1473
BASIX Details	Certificate Number: 14733300 BASIX adjusted conditioned area: 225m² Area adjusted heating load: 42 MJ/m²/pa BASIX adjusted un-conditioned area: 0m² Area adjusted cooling load: 45 MJ/m²/pa
Specification	The following specification was used to achieve the thermal performance values. Modelling proxies are used at times and if the buildings element details vary the thermal performance specifications below shall take precedence. If there is a change to this specification during design or construction phases please contact Efficient Living for advice and if required an updated certificate will be issued.
Floors	Concrete slab on ground with wafflepod (min. of R1.0 insulation equivalent) Concrete slab, no insulation required between levels internally. Minimum of R1.0 insulation (up & down) added to the area of open sub-floor
Walls	External walls: Cavity brick to ground floor walls, with Permicav insulation or equivalent (minimum of R1.79 total system value) Cavity brick wall to earth, no insulation Brick veneer with R2.0 bulk insulation Default medium colour Internal walls: Brick walls, no insulation
Windows	Aluminium frames with single clear glass U-Value (equal to or lower than): 6.57 SHGC (+ or - 10%): 0.74 Given values are NFRC, total window values <u>Window operability:</u> All windows that open to a deck or a terrace are assumed to be sliding doors. Windows located on stairwell are assumed to be fixed windows Any other window have been modelled with minimum of 10% operability
Skylights	None
Ceilings	Plasterboard with R3.0 bulk insulation Note: Loss of ceiling insulation due to penetrations from down lights have been accounted for in accordance with BCA Technical Note 2 and assume non-ventilated LED down lights

This home has been assessed under the thermal simulation method of the BASIX Protocol

Roof	Concrete roof with no insulation light colour (SA < 0.475)
Floor Coverings	Tiles to wet areas and carpet to bedrooms and living areas
External shade	Vertical shadings as per plans Eaves as per plans
Ventilation	All external doors have weather seals, all exhaust fans and chimneys have dampers, any down lights proposed will have capped fittings.
Report contact	Pamela Villares Ph: 02 9970 6181 Email: pamela@efficientliving.com.au
BCA requirements	In addition to the BASIX requirements; all new residential dwellings (class 1 buildings) Must comply with; NSW PART 3.12.1 Building sealing & 3.12.5.0 - 3.12.5.3





NatHERS Certificate

New Dwelling



4.0 Stars

Simulation Software

Software Name BERS Pro 4.2
Software Version Release 110811/A
Engine Version CHENATH V2.13

Simulation Details

Project Name House - Lot 3_1
Date 30/07/2015
Location PYMBLE PC 2073
Climate file climat56.TXT
Adjusted Star Rating 4.0 Stars
Conditioned Area 225.20 m²
Unconditioned Area 0.00 m²
Adjusted Cooling 44.9 MJ/m²
Adjusted Heating 42.0 MJ/m²
Adjusted Total 86.9 MJ/m²

Dwelling Address

DP Number 583803
Unit Number
Lot Number 1
House Number
Street Name Avon Road
Development Name
Suburb Pymble NSW 2073

Client Details

Name Marchese Partners International Pty Ltd
Phone 02 9922 4375 Fax 02 9929 5786
Email info@marchesepartners.com.au
Postal Address Level 7, 107 Mount Street, North Sydney, NSW 2060
Street Details Level 7, 107 Mount Street, North Sydney, NSW 2060

Assessor Details

Name Tracey Cools
Phone 02 9970 6181 Fax 02 9970 6181
Email admin@efficientliving.com.au
Postal Address
Street Details 13/13 Lagoon Street, Narrabeen NSW 2101

		Energy Rating		Certificate Number	14733300
☒	single-dwelling rating				4.0 stars
☐	multi-unit development (attach listing of ratings)	heating	42 MJ/m ²	cooling	45 MJ/m ²
If selected, data specified is the average across the entire development					
Recessed downlights confirmation:		☒ Rated with	☐ Rated without		
Assessor Name/Number		Tracey Cools VIC/BDAY/12/1473			
Assessor Signature				Date	10/08/15

Signed by the Assessor..........Date.....10 / 08 / 15.....

*Tilted roof windows with blinds cannot be modelled using this version of BERSPro.
All windows are modelled with Holland Blinds for regulatory purposes.*

Building Element Details

Project House - Lot 3 Run 1
PYMBLE PC 2073 Lat -33.80 Long 151.10 Climate File climat56.TXT

Summary

Conditioned Area	225.2 m²
Unconditioned Area	0.0 m²
Total Floor Area	225.2 m²
Total Glazed Area	135.7 m²
Total External Solid door Area	0.0 m²
Glass to Floor Area	60.2 %
Gross External Wall Area	301.9 m²
Net External Wall Area	166.3 m²

Window

135.7 m²	GGG-05-001a Generics	Uval 6.57	SHGC 0.74
	Glass	Single Glazed Clear	
	Frame	Aluminium	

External Wall

5.9 m²	Cavity Brick	Bulk, Reflective One Side, Anti-glare	Other R 0.8
60.7 m²	Cavity Brick to earth	No Insulation	
99.7 m²	Brick Veneer	Bulk Insulation R 2.0	

Internal Wall

175.8 m²	Single Skin Brick	No Insulation	
----------	-------------------	---------------	--

External Floor

55.6 m²	Concrete Slab on Ground	60/40 Carpet 10mm/Ceramic	Bulk Insulation in Contact with Floor R 1.0
4.0 m²	Concrete Slab on Ground	Carpet 10mm	Bulk Insulation in Contact with Floor R 1.0
12.2 m²	Concrete Slab on Ground	Ceramic Tiles 8mm	Bulk Insulation in Contact with Floor R 1.0
23.7 m²	Suspended Concrete Slab	Carpet 10mm	Bulk Insulation in Contact with Floor R 1.0

External Ceiling

95.6 m²	Plasterboard	Bulk Insulation R2.5 Unventilated roofspace	
---------	--------------	---	--

Internal Floor/Ceiling

129.6 m²	Concrete Above Plasterboard	No Insulation	
----------	-----------------------------	---------------	--

Roof (Horizontal area)

95.6 m²	Concrete	No Insulation, Only an Air Gap	0° slope Skillion roof
---------	----------	--------------------------------	------------------------

**Energy Rating**

Certificate Number 14733300

☒ single-dwelling rating

☐ multi-unit development (attach listing of ratings)
If selected, data specified is the average across the entire development

heating 42 MJ/m²

cooling 45 MJ/m²

Recessed downlights confirmation: ☒ Rated with ☐ Rated without

Assessor Name/Number Tracey Cools VIC/BDAV/12/1473

Assessor Signature  Date 10/08/15

BASIX[®]Certificate

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

Single Dwelling

Certificate number: 656429S

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 18/09/2014 published by Planning & Infrastructure. This document is available at www.basix.nsw.gov.au

Director-General

Date of issue: Monday, 10 August 2015

To be valid, this certificate must be lodged within 3 months of the date of issue.



Project summary		
Project name	Avon Rd - House Lot 3	
Street address	1 Avon Road Pymble 2073	
Local Government Area	Ku-ring-gai Council	
Plan type and plan number	deposited 583803	
Lot no.	3	
Section no.	-	
Project type	separate dwelling house	
No. of bedrooms	4	
Project score		
Water	 40	Target 40
Thermal Comfort	 Pass	Target Pass
Energy	 43	Target 40

Certificate Prepared by
Name / Company Name: Efficient Living
ABN (if applicable): 82116346082

Description of project

Project address

Project name	Avon Rd - House Lot 3
Street address	1 Avon Road Pymble 2073
Local Government Area	Ku-ring-gai Council
Plan type and plan number	Deposited Plan 583803
Lot no.	3
Section no.	-

Project type

Project type	separate dwelling house
No. of bedrooms	4

Site details

Site area (m ²)	1196
Roof area (m ²)	165
Conditioned floor area (m2)	225.0
Unconditioned floor area (m2)	0.0
Total area of garden and lawn (m2)	771

Assessor details and thermal loads

Assessor number	BDAV/12/1473
Certificate number	14733300
Climate zone	56
Area adjusted cooling load (MJ/m ² .year)	45
Area adjusted heating load (MJ/m ² .year)	42

Other

none	n/a
------	-----

Project score

Water	 40	Target 40
Thermal Comfort	 Pass	Target Pass
Energy	 43	Target 40

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.

Water Commitments	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
Fixtures			
The applicant must install showerheads with a minimum rating of 3 star (> 6 but <= 7.5 L/min) in all showers in the development.		✓	✓
The applicant must install a toilet flushing system with a minimum rating of 4 star in each toilet in the development.		✓	✓
The applicant must install taps with a minimum rating of 4 star in the kitchen in the development.		✓	
The applicant must install basin taps with a minimum rating of 4 star in each bathroom in the development.		✓	
Alternative water			
Rainwater tank			
The applicant must install a rainwater tank of at least 5000 litres on the site. This rainwater tank must meet, and be installed in accordance with, the requirements of all applicable regulatory authorities.	✓	✓	✓
The applicant must configure the rainwater tank to collect rain runoff from at least 148 square metres of the roof area of the development (excluding the area of the roof which drains to any stormwater tank or private dam).		✓	✓
The applicant must connect the rainwater tank to: - all toilets in the development - the cold water tap that supplies each clothes washer in the development - at least one outdoor tap in the development (Note: NSW Health does not recommend that rainwater be used for human consumption in areas with potable water supply.)		✓ ✓ ✓	✓ ✓ ✓

Thermal Comfort Commitments	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
Simulation Method			
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 an occupation certificate for the proposed development.			
The Assessor Certificate must have been issued by an Accredited Assessor in accordance with the Thermal Comfort Protocol.			
The details of the proposed development on the Assessor Certificate must be consistent with the details shown in this BASIX certificate, including the Cooling and Heating loads shown on the front page of this certificate.			
The applicant must show on the plans accompanying the development application for the proposed development, all matters which the Assessor Certificate 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. 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.			
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.		✓	✓
The applicant must construct the floors and walls of the dwelling in accordance with the specifications listed in the table below.	✓	✓	✓

Floor and wall construction	Area
floor - concrete slab on ground	72.0 square metres
floor - suspended floor/open subfloor	24.0 square metres

Energy Commitments	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
Hot water			
The applicant must install the following hot water system in the development, or a system with a higher energy rating: gas instantaneous with a performance of 5 stars.	✓	✓	✓
Cooling system			
The applicant must install the following cooling system, or a system with a higher energy rating, in at least 1 living area: 1-phase airconditioning; Energy rating: 1 Star (new rating)		✓	✓
The applicant must install the following cooling system, or a system with a higher energy rating, in at least 1 bedroom: 1-phase airconditioning; Energy rating: 1 Star (new rating)		✓	✓
Heating system			
The applicant must install the following heating system, or a system with a higher energy rating, in at least 1 living area: 1-phase airconditioning; Energy rating: 1.5 Star (new rating)		✓	✓
The applicant must install the following heating system, or a system with a higher energy rating, in at least 1 bedroom: 1-phase airconditioning; Energy rating: 1.5 Star (new rating)		✓	✓
Ventilation			
The applicant must install the following exhaust systems in the development:			
At least 1 Bathroom: individual fan, ducted to façade or roof; Operation control: manual switch on/off		✓	✓
Kitchen: individual fan, ducted to façade or roof; Operation control: manual switch on/off		✓	✓
Laundry: individual fan, ducted to façade or roof; Operation control: manual switch on/off		✓	✓
Artificial lighting			
The applicant must ensure that the "primary type of artificial lighting" is fluorescent or light emitting diode (LED) lighting in each of the following rooms, and where the word "dedicated" appears, the fittings for those lights must only be capable of accepting fluorescent or light emitting diode (LED) lamps:			
• at least 4 of the bedrooms / study;		✓	✓
• at least 2 of the living / dining rooms;		✓	✓
• the kitchen;		✓	✓

Energy Commitments	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
• all bathrooms/toilets; • the laundry; • all hallways;		  	  
Natural lighting			
The applicant must install a window and/or skylight in the kitchen of the dwelling for natural lighting.			
The applicant must install a window and/or skylight in 1 bathroom(s)/toilet(s) in the development for natural lighting.			
Other			
The applicant must install a gas cooktop & electric oven in the kitchen of the dwelling.			
The applicant must install a fixed outdoor clothes drying line as part of the development.			

Legend

In these commitments, "applicant" means the person carrying out the development.

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).

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.

Commitments identified with a  in the "Certifier check" column must be certified by a certifying authority as having been fulfilled, before a final occupation certificate (either interim or final) for the development may be issued.