

# Thermal Comfort & BASIX Assessment

BUILDING  
SUSTAINABILITY  
CONSULTANTS



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Ausbao Pty Ltd

Development application for:

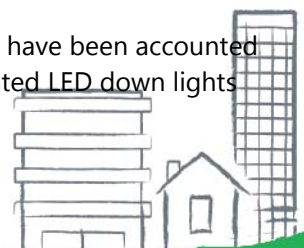
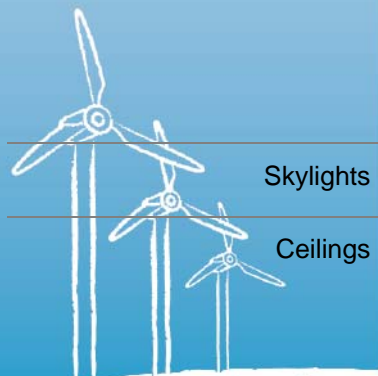
House Lot 1 - Avon Road

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.



Assessor	Tracey Cools
Accreditation Number	VIC/BDAV/12/1473
BASIX Details	<p>Certificate Number: 14733298</p> <p>BASIX adjusted conditioned area: 191m<sup>2</sup>      Area adjusted heating load: 43 MJ/m<sup>2</sup>/pa</p> <p>BASIX adjusted un-conditioned area: 0m<sup>2</sup>      Area adjusted cooling load: 45 MJ/m<sup>2</sup>/pa</p>
Specification	<p>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.</p> <p>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.</p>
Floors	<p>Concrete slab on ground with wafflepod (min. of R1.0 insulation equivalent)</p> <p>Concrete slab, no insulation required between levels internally.</p> <p>Minimum of R1.0 insulation (up &amp; down) added to the area of open sub-floor</p>
Walls	<p>External walls: Cavity brick to ground floor walls, with Permican insulation or equivalent (minimum of R1.79 total system value)</p> <p>Brick veneer with R2.0 bulk insulation</p> <p>Brick wall to garage with no insulation</p> <p>Default medium colour</p> <p>Internal walls: Brick walls, no insulation</p>
Windows	<p>Aluminium frames with single clear glass</p> <p>U-Value (equal to or lower than): 6.57</p> <p>SHGC (+ or - 10%): 0.74</p> <p>Given values are NFRC, total window values</p> <p><u>Window operability:</u></p> <p>All windows that open to a deck or a terrace are assumed to be sliding doors.</p> <p>Windows located on stairwell are assumed to be fixed windows</p> <p>Any other window have been modelled with minimum of 10% operability</p>
Skylights	None
Ceilings	<p>Plasterboard with R3.0 bulk insulation (excluding garage)</p> <p>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</p>



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 1\_1  
Date 30/07/2015  
Location PYMBLE PC 2073  
Climate file climat56.TXT  
Adjusted Star Rating 4.0 Stars  
Conditioned Area 191.38 m<sup>2</sup>  
Unconditioned Area 35.38 m<sup>2</sup>  
Adjusted Cooling 45.2 MJ/m<sup>2</sup>  
Adjusted Heating 42.5 MJ/m<sup>2</sup>  
Adjusted Total 87.7 MJ/m<sup>2</sup>

#### 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

	<b>Energy Rating</b>	Certificate Number 14733298
<input checked="" type="checkbox"/> single-dwelling rating		4.0 stars
<input type="checkbox"/> multi-unit development (attach listing of ratings) <small>If selected, data specified is the average across the entire development</small>	heating 43 MJ/m <sup>2</sup> cooling 45 MJ/m <sup>2</sup>	
Recessed downlights confirmation: <input checked="" type="checkbox"/> Rated with <input type="checkbox"/> Rated without		
Assessor Name/Number Tracey Cools VIC/BDVA/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 1 Run 1  
PYMBLE PC 2073 Lat -33.80 Long 151.10 Climate File climat56.TXT

## Summary

Conditioned Area	191.4 m <sup>2</sup>
Unconditioned Area	35.4 m <sup>2</sup>
Total Floor Area	226.8 m <sup>2</sup>
Total Glazed Area	91.5 m <sup>2</sup>
Total External Solid door Area	12.6 m <sup>2</sup>
Glass to Floor Area	40.4 %
Gross External Wall Area	247.3 m <sup>2</sup>
Net External Wall Area	143.2 m <sup>2</sup>

## Window

91.5 m<sup>2</sup> GGG-05-001a Generics Uval 6.57 SHGC 0.74  
Glass Single Glazed Clear  
Frame Aluminium

## External Wall

65.3 m<sup>2</sup> Cavity Brick Bulk, Reflective One Side, Anti-glare Other R 0.8  
20.2 m<sup>2</sup> Single Skin Brick No Insulation  
57.6 m<sup>2</sup> Brick Veneer Bulk Insulation R 2.0

## Internal Wall

194.0 m<sup>2</sup> Single Skin Brick No Insulation

## External Floor

71.5 m<sup>2</sup> Concrete Slab on Ground 60/40 Carpet 10mm/Ceramic Bulk Insulation in Contact with Floor R 1.0  
18.4 m<sup>2</sup> Concrete Slab on Ground Ceramic Tiles 8mm Bulk Insulation in Contact with Floor R 1.0  
22.1 m<sup>2</sup> Concrete Slab on Ground Carpet 10mm Bulk Insulation in Contact with Floor R 1.0  
35.4 m<sup>2</sup> Concrete Slab on Ground Bare Bulk Insulation in Contact with Floor R 1.0  
4.5 m<sup>2</sup> Suspended Concrete Slab Carpet 10mm Bulk Insulation in Contact with Floor R 1.0

## External Ceiling



116.6 m<sup>2</sup> Plasterboard Bulk Insulation R2.5 Unventilated roofspace  
35.4 m<sup>2</sup> Plasterboard No Insulation Unventilated roofspace

## Internal Floor/Ceiling

82.0 m<sup>2</sup> Concrete Above Plasterboard No Insulation

## Roof (Horizontal area)

151.9 m<sup>2</sup> Concrete No Insulation, Only an Air Gap 0° slope Skillion roof

	<b>Energy Rating</b>	Certificate Number <u>14733298</u>
<input checked="" type="checkbox"/> single-dwelling rating		<u>4.0</u> stars
<input type="checkbox"/> multi-unit development (attach listing of ratings) <small>If selected, data specified is the average across the entire development</small>	heating <u>43</u> MJ/m <sup>2</sup>	cooling <u>45</u> MJ/m <sup>2</sup>
Recessed downlights confirmation: <input checked="" type="checkbox"/> Rated with <input type="checkbox"/> Rated without		
Assessor Name/Number <u>Tracey Cools VIC/BDAV/12/1473</u>		
Assessor Signature <u></u>	Date <u>10/08/15</u>	

# BASIX<sup>®</sup>Certificate

Building Sustainability Index [www.basix.nsw.gov.au](http://www.basix.nsw.gov.au)

## Single Dwelling

Certificate number: 653270S

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](http://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 1	
Street address	1 Avon Road Pymble 2073	
Local Government Area	Ku-ring-gai Council	
Plan type and plan number	deposited 583803	
Lot no.	1	
Section no.	-	
Project type	separate dwelling house	
No. of bedrooms	3	
Project score		
Water	✓ 41	Target 40
Thermal Comfort	✓ Pass	Target Pass
Energy	✓ 41	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 1
Street address	1 Avon Road Pymble 2073
Local Government Area	Ku-ring-gai Council
Plan type and plan number	Deposited Plan 583803
Lot no.	1
Section no.	-
Project type	
Project type	separate dwelling house
No. of bedrooms	3
Site details	
Site area (m <sup>2</sup> )	831
Roof area (m <sup>2</sup> )	165
Conditioned floor area (m2)	191.0
Unconditioned floor area (m2)	0.0
Total area of garden and lawn (m2)	545

Assessor details and thermal loads		
Assessor number	BDAV/12/1473	
Certificate number	14733298	
Climate zone	56	
Area adjusted cooling load (MJ/m <sup>2</sup> .year)	45	
Area adjusted heating load (MJ/m <sup>2</sup> .year)	43	
Other		
none	n/a	
Project score		
Water	 41	Target 40
Thermal Comfort	 Pass	Target Pass
Energy	 41	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
<b>Fixtures</b>			
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.		✓	
<b>Alternative water</b>			
<b>Rainwater tank</b>			
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 132 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: <ul style="list-style-type: none"> <li>all toilets in the development</li> <li>the cold water tap that supplies each clothes washer in the development</li> <li>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.)</li> </ul>		✓ ✓ ✓	✓ ✓ ✓



Thermal Comfort Commitments	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
<b>Simulation Method</b>			
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	112.0 square metres
floor - suspended floor/open subfloor	5.0 square metres


Energy Commitments	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
<b>Hot water</b>			
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.	✓	✓	✓
<b>Cooling system</b>			
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)		✓	✓
<b>Heating system</b>			
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)		✓	✓
<b>Ventilation</b>			
<p>The applicant must install the following exhaust systems in the development:</p> <p>At least 1 Bathroom: individual fan, ducted to façade or roof; Operation control: manual switch on/off</p> <p>Kitchen: individual fan, ducted to façade or roof; Operation control: manual switch on/off</p> <p>Laundry: individual fan, ducted to façade or roof; Operation control: manual switch on/off</p>		<p>✓</p> <p>✓</p> <p>✓</p>	<p>✓</p> <p>✓</p> <p>✓</p>
<b>Artificial lighting</b>			
<p>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:</p> <ul style="list-style-type: none"> <li>• at least 4 of the bedrooms / study;</li> <li>• at least 2 of the living / dining rooms;</li> <li>• the kitchen;</li> </ul>		<p>✓</p> <p>✓</p> <p>✓</p>	<p>✓</p> <p>✓</p> <p>✓</p>


Energy Commitments	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
<ul style="list-style-type: none"> <li>• all bathrooms/toilets;</li> <li>• the laundry;</li> <li>• all hallways;</li> </ul>		  	  
<b>Natural lighting</b>			
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.			
<b>Other</b>			
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.