

# Thermal Comfort Assessment

**BUILDING  
SUSTAINABILITY  
CONSULTANTS**



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RSL Life Care

Development application for:

Unit 18 Cutler Village,

Narrabeen, NSW 2101

| Issue | File Ref | Description                                      | Author | Date     |
|-------|----------|--|--------|----------|
| 01    | 9604     | BASIX assessment with Thermal Comfort simulation | DA     | 14/12/15 |
|       |          |  |        |          |

This report has been prepared by Efficient Living Pty Ltd on behalf of our client Humel Architects. 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        | <p>Certificate Number: 14733741</p> <p>BASIX adjusted conditioned area: 105m<sup>2</sup>      Area adjusted heating load: 40 MJ/m<sup>2</sup>/pa</p> <p>BASIX adjusted un-conditioned area: 13m<sup>2</sup>      Area adjusted cooling load: 24 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               | Concrete slab on ground   |
| Walls                | <p>External walls:</p> <p>Brick veneer with R2.0 bulk insulation except for garage</p> <p>Garage walls single skin brickwork with featured lightweight cladding on studs, no insulation</p> <p>Default colour modelled</p> <p>Internal walls:</p> <p>Plasterboard on studs, 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>  |
| Ceilings             | <p>Plasterboard with R3.5 bulk insulation (garage excluded)</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>   |
| Roof                 | <p>Concrete roof tiles – no insulation</p> <p>Dark colour (SA &gt; 0.7)</p>   |
| Floor Coverings      | Tiles to wet areas, carpet to all living areas and bedrooms.  |
| External shade       | Eaves with covered entry + balcony 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       | <p>Name: David Arnott</p> <p>Ph: 02 9970 6181 Email: david@efficientliving.com.au</p>   |
| BCA requirements     | <p>In addition to the BASIX requirements; all new residential dwellings (class 1 buildings)</p> <p>Must comply with; NSW PART 3.12.1 Building sealing &amp; 3.12.5.0 - 3.12.5.3</p>   |



# NatHERS Certificate

## New Dwelling



**5.0 Stars**

### Simulation Software

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

### Simulation Details

Project Name Unit 18 - Cutler Village\_1  
Date 13/02/2015  
Location NARRABEEN PC 2101  
Climate file climat56.TXT  
Adjusted Star Rating 5.0 Stars  
Conditioned Area 104.82 m<sup>2</sup>  
Unconditioned Area 34.07 m<sup>2</sup>  
Adjusted Cooling 24.2 MJ/m<sup>2</sup>  
Adjusted Heating 39.6 MJ/m<sup>2</sup>  
Adjusted Total 63.8 MJ/m<sup>2</sup>

### Dwelling Address


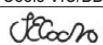
DP Number 752038  
Unit Number  
Lot Number 2641  
House Number  
Street Name  
Development Name Cutler Village  
Suburb Narrabeen NSW 2101

### Client Details

Name Humel Architects  
Phone 02 9981 6511 Fax 02 9981 1913  
Email info@humel.com.au  
Postal Address PO Box 1666 Dee why NSW 2099  
Street Details

### 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 <b>14733741</b> |
| <input checked="" type="checkbox"/>   | single-dwelling rating  |   |  | <b>5.0</b> stars                   |
| <input type="checkbox"/>  | multi-unit development (attach listing of ratings)<br><small>If selected, data specified is the average across the entire development</small> | heating   | <b>40</b>                              | MJ/m <sup>2</sup>                  |
|   |   | cooling   | <b>24</b>                              | 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/BDAV/12/1473   |  |                                    |
| Assessor Signature  |   |  |  | Date <b>14.12.15</b>               |

Signed by the Assessor..........Date.....14/ 12 /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 Unit 18 - Cutler Village Run 1  
NARRABEEN PC 2101 Lat -33.70 Long 151.30 Climate File climat56.TXT

### Summary

|                                |                      |
|--------------------------------|----------------------|
| Conditioned Area               | 104.8 m <sup>2</sup> |
| Unconditioned Area             | 34.1 m <sup>2</sup>  |
| Total Floor Area               | 138.9 m <sup>2</sup> |
| Total Glazed Area              | 29.5 m <sup>2</sup>  |
| Total External Solid door Area | 8.1 m <sup>2</sup>   |
| Glass to Floor Area            | 21.2 %               |
| Gross External Wall Area       | 140.6 m <sup>2</sup> |
| Net External Wall Area         | 103.0 m <sup>2</sup> |

### Window

|                     |             |               |           |           |
|---------------------|-------------|---------------|-----------|-----------|
| 29.5 m <sup>2</sup> | GGG-05-001a | Generics      | Uval 6.57 | SHGC 0.74 |
|                     | Glass       | Single Glazed | Clear     |           |
|                     | Frame       | Aluminium     |           |           |

### External Wall

|                     |                           |                       |
|---------------------|---------------------------|-----------------------|
| 80.7 m <sup>2</sup> | Brick Veneer              | Bulk Insulation R 2.0 |
| 17.1 m <sup>2</sup> | Single Skin Brick         | No Insulation         |
| 5.2 m <sup>2</sup>  | Weatherboard Cavity Panel | No Insulation         |

### Internal Wall

|                      |                       |               |
|----------------------|-----------------------|---------------|
| 111.4 m <sup>2</sup> | Cavity Panel 70mm gap | No Insulation |
|----------------------|-----------------------|---------------|

### External Floor



|                     |                         |                           |               |
|---------------------|-------------------------|---------------------------|---------------|
| 39.9 m <sup>2</sup> | Concrete Slab on Ground | Carpet 10mm               | No Insulation |
| 60.9 m <sup>2</sup> | Concrete Slab on Ground | 80/20 Carpet 10mm/Ceramic | No Insulation |
| 16.4 m <sup>2</sup> | Concrete Slab on Ground | Ceramic Tiles 8mm         | No Insulation |
| 21.6 m <sup>2</sup> | Concrete Slab on Ground | Bare                      | No Insulation |

### External Ceiling

|                      |              |   |
|----------------------|--------------|---|
| 117.3 m <sup>2</sup> | Plasterboard | Bulk Insulation R3.2 Unventilated roofspace |
| 21.6 m <sup>2</sup>  | Plasterboard | No Insulation Unventilated roofspace        |

### Roof (Horizontal area)

|                      |            |                                |           |          |
|----------------------|------------|--------------------------------|-----------|----------|
| 138.9 m <sup>2</sup> | Roof Tiles | No Insulation, Only an Air Gap | 17° slope | Hip roof |
|----------------------|------------|--------------------------------|-----------|----------|

|  |  |  |
|--|--|--|
|    | <b>Energy Rating</b>   | Certificate Number <u>14733741</u>     |
| <input checked="" type="checkbox"/> single-dwelling rating   |  | <u>5.0</u> stars                       |
| <input type="checkbox"/> multi-unit development (attach listing of ratings)<br><small>If selected, data specified is the average across the entire development</small> | heating <u>40</u> MJ/m <sup>2</sup>  | cooling <u>24</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/BDV/12/1473</u>  |  |
| Assessor Signature   | <u></u> | Date <u>14.12.15</u>                   |

# BASIX<sup>®</sup>Certificate

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

## Single Dwelling

Certificate number: 692027S




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, 14 December 2015

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



| Project summary           |  |             |
|---------------------------|--|-------------|
| Project name              | Unit 18 Cutler Village   |             |
| Street address            | 18 Cutler Circuit Narrabeen 2101   |             |
| Local Government Area     | Warringah Council  |             |
| Plan type and plan number | deposited 752038   |             |
| Lot no.                   | 2641   |             |
| Section no.               | -  |             |
| Project type              | separate dwelling house  |             |
| No. of bedrooms           | 2  |             |
| Project score             |  |             |
| Water                     |  40   | Target 40   |
| Thermal Comfort           |  Pass | Target Pass |
| Energy                    |  40   | Target 40   |

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

# Description of project

## Project address

|                           |                                  |
|---------------------------|----------------------------------|
| Project name              | Unit 18 Cutler Village           |
| Street address            | 18 Cutler Circuit Narrabeen 2101 |
| Local Government Area     | Warringah Council                |
| Plan type and plan number | Deposited Plan 752038            |
| Lot no.                   | 2641                             |
| Section no.               | -                                |

## Project type

|                 |                         |
|-----------------|-------------------------|
| Project type    | separate dwelling house |
| No. of bedrooms | 2                       |

## Site details

|                                    |       |
|------------------------------------|-------|
| Site area (m <sup>2</sup> )        | 400   |
| Roof area (m <sup>2</sup> )        | 185   |
| Conditioned floor area (m2)        | 105.0 |
| Unconditioned floor area (m2)      | 13.0  |
| Total area of garden and lawn (m2) | 140   |

## Assessor details and thermal loads

|  |              |
|--|--------------|
| Assessor number                                      | BDAV/12/1473 |
| Certificate number                                   | 14733741     |
| Climate zone   | 56           |
| Area adjusted cooling load (MJ/m <sup>2</sup> .year) | 24           |
| Area adjusted heating load (MJ/m <sup>2</sup> .year) | 40           |

## Other

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

## Project score

|                 |        |             |
|-----------------|--------|-------------|
| Water           | ✓ 40   | Target 40   |
| Thermal Comfort | ✓ Pass | Target Pass |
| Energy          | ✓ 40   | 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 (> 7.5 but <= 9 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 5 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 3000 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 180 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  |                  | ✓                            | ✓               |
| • 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 |
|--|------------------|------------------------------|-----------------|
| <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 | All or part of floor area 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 6 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: 2 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: 2 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: 2.5 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: 2.5 Star (new rating)   |                  | ✓                            | ✓               |
| <b>Ventilation</b>   |                  |                              |                 |
| The applicant must install the following exhaust systems in the development:<br>At least 1 Bathroom: no mechanical ventilation (ie. natural); Operation control: n/a<br><br>Kitchen: individual fan, not ducted; Operation control: manual switch on/off<br><br>Laundry: natural ventilation only, or no laundry; Operation control: n/a   |                  | ✓<br>✓<br>✓                  | ✓<br>✓<br>✓     |
| <b>Artificial lighting</b>   |                  |                              |                 |
| 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:<br><ul style="list-style-type: none"> <li>at least 3 of the bedrooms / study;</li> <li>at least 1 of the living / dining rooms;</li> <li>the kitchen;</li> </ul> |                  | ✓<br>✓<br>✓                  | ✓<br>✓<br>✓     |


| 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> |   | <br><br> | <br><br> |
| <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 2 bathroom(s)/toilet(s) in the development for natural lighting.     |  |    |    |
| <b>Other</b>  |   |   |   |
| The applicant must install a fixed indoor or sheltered 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.