

# Thermal Comfort Upgrade Report

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

## Service Objective

All new homes in NSW are required to meet thermal comfort targets to ensure new housing stock has lower reliance on mechanical heating and cooling systems.

Your home has been modelled under NatHERS software (National House Energy Rating Scheme) and the results indicate you are likely to use more energy than allowed under the BASIX heating / cooling caps.

In this report we detail the maximum BASIX heating and cooling loads and your current results with the base file inclusions as listed below. Over the page is a list of options available to help you achieve your required targets.

## Dwelling Performance

With your base file inclusions your home is performing at a 2.0 star level.

Maximum cooling load: 39 MJ/m<sup>2</sup>/pa

Maximum heating load: 39 MJ/m<sup>2</sup>/pa

Current cooling load: 181 MJ/m<sup>2</sup>/pa

Current heating load: 22 MJ/m<sup>2</sup>/pa

With your base file inclusions you are currently 141 MJ over your allowable cooling load - upgrades are required to comply.

With your base file inclusions your heating loads are passing.

### Thermal Performance Base File Inclusions

Floors	Concrete slab on ground with waffle pods (R1.0 equivalent) Timber first floor, no insulation required between levels internally
Walls	<u>External walls:</u> Brick veneer with an R2.0 bulk insulation Weatherboard with an R2.0 bulk insulation Single skin brick, no insulation – garage only <u>Colour:</u> light colour (SA < 0.475) <u>Internal walls:</u> Plasterboard on studs, no insulation
Windows	Aluminium frames with single clear glass U-Value (equal to or lower than): 6.51 SHGC (+ or - 10%): 0.75 Given values are NFRC, total window values
Skylights	None
Ceilings	Plasterboard with R3.0 bulk insulation It has been assumed at DA stage that the area of all ceiling penetrations is less than 0.5% of the total ceiling area. If down lights are proposed at a later stage, BCA loss of insulation calculations will be required.
Roof	Tiled roof with no insulation medium colour (SA 0.475-0.7)
Floor coverings	Tiles to wet areas and living areas. Carpet to bedroom, halls, media, study and office.
External shade	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.



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Thermal Performance Upgrade Options	
	Upgrade
Option A	R2.0 insulation to the enclosed sub floor (This upgrade will improve your home from 2.0 star to a 4.0 star home) Low E glazing throughout PASS
Option B	R2.0 insulation to the enclosed sub floor Reduce upper floor height to 2.4m with no offset to the windows Sarking to the roof Change the colour of the roof to light Delete North facing meals/living window: 1218 Reduce the following windows/doors: <ul style="list-style-type: none"> <li>- 2 x East facing meal doors from 2136 to 2127</li> <li>- 2 x North facing meals/living window from 2.7 wide to 2.1</li> <li>- 1 x West facing living room door from 2145 to 2136</li> <li>- 1 x West facing media room door from 2131 to 2127</li> <li>- 1 x East facing upper floor hallway window from 2136 to 2127</li> </ul> PASS
Option C	R2.0 insulation to the enclosed sub floor Significant window reduction & window deletion

All Efficient Living services include 3 options available to achieve a pass result. If you select one of the listed options no additional service fee need apply. We are however happy to trail as many upgrades as you like to ensure you get the results you want - this extra work will however be charged at additional hourly rates.

Generally we find getting the insulation / thermal mass of the external shell right first is the best option. Upgrades to glass types and shading system are also very effective.

We will try to minimise glass reductions in our upgrades as we feel this is very much personal preference and can compromise the architectural style of the home. If however cost is a big driver on this project and you feel some rooms can accommodate a reduction in the glazed area please let us know which windows you wish to reduce.

We will now place this project on hold until you get back to us with preferred upgrade option.

Regards

Kristy Harrison

