

HUBBLE × THINK BRICK

Why bricks got the 10 Star Home to 10 stars

Using the Think Brick Home Comfort Calculator to show what reverse brick veneer does for comfort and energy.

Jim Woolcock
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Our Team



Jim Woolcock

Co-founder & CSO



Our team brings over 20 years of combined expertise in energy efficiency and machine learning. With deep knowledge in sustainable building practices and cutting-edge AI technologies.



Our work, trusted across sectors.

Think Brick Australia

PEAK BODY (BUILDING PRODUCTS)

Peak body for Australia's \$2.8B clay brick industry. Hubble built and operates the Comfort Calculator — the category's interactive performance benchmarking tool.

Window & Shading Association of Australia

PEAK BODY (RESEARCH)

Independent shading research informing policy and industry submissions.
500,000+ data points modelled across Australian climate zones.

Fletcher Insulation

MANUFACTURER

Custom performance calculator deployed for Australia's Pink Batts® licensee.

Alexander Watson

INSTALLER (RETROFIT AT SCALE)

ACT's largest residential insulation specialist.
AI-driven pricing, lead routing and operational data capture for retrofit delivery.

02

The Home Comfort Calculator

Free, public, and built for the decisions made before a design is locked in.

Test material choices before you commit to them

Homeowners, architects and designers can explore the energy and carbon impact of different materials, based on performance data from real buildings.

1

Choose a base design

A preset that matches the building type and climate zone.

2

Customise the build

Insulation, glazing and wall, roof and floor layers.

3

Review the insights

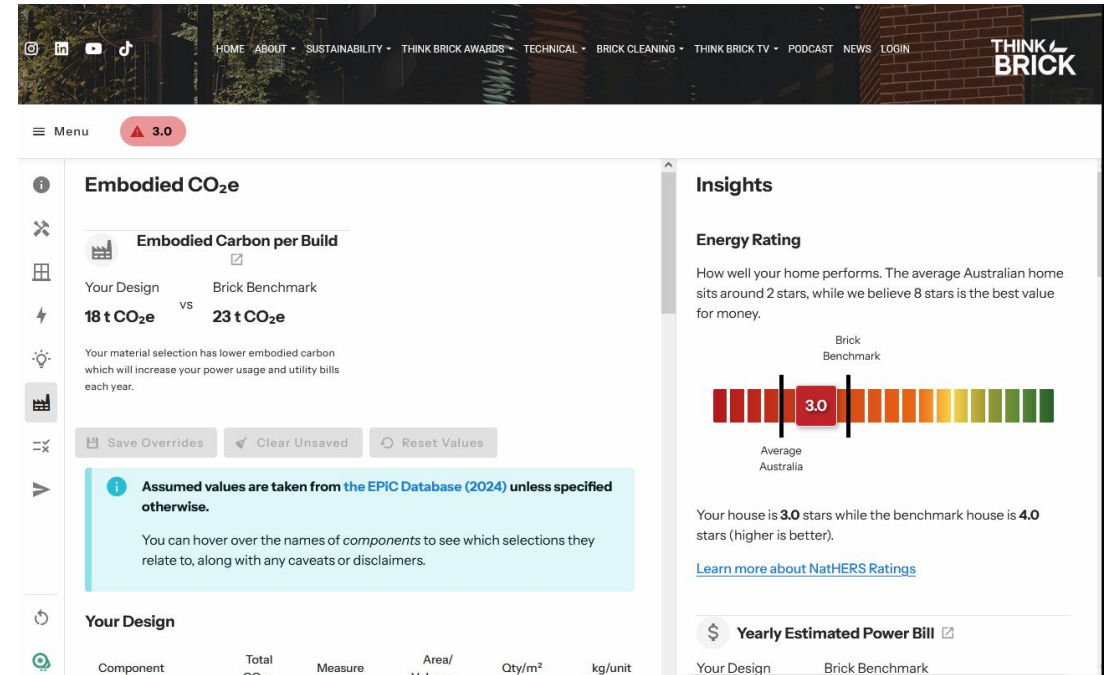
Stars, energy, bills, embodied and operational carbon.

4

Find improvements

Practical ideas to cut impact and lift comfort.

thinkbrick.com.au/sustainability/home-comfort-calculator



Powered by Hubble. Ratings are for guidance only, aligned to NatHERS.

Every design is measured against a Brick Benchmark

The benchmark is your own design, rebuilt with a clay tile roof, brick veneer walls and a concrete floor. Change one thing and you see exactly what it does.

Energy rating

NatHERS-aligned star rating for your design and the benchmark

Heating & cooling

Estimated loads in MJ/m², the numbers behind the stars

Power bill & use

Yearly kWh and estimated dollars

Embodied carbon

t CO₂e per build, from the EPiC Database (2024)

Operational carbon

kg CO₂e per year, plus a 50-year carbon payback view

ComfortScore® feedback

Plain-language notes on each element: walls, roof, windows, insulation



Embodied CO₂e

Embodied Carbon per Build

Your Design
42 t CO₂e vs Brick Benchmark
37 t CO₂e

Higher embodied carbon from thermal mass will reduce your yearly power usage and utility bills.

Save Overrides Clear Unsaved Reset Values

Assumed values are taken from the EPiC Database (2024) unless specified otherwise.

You can hover over the names of *components* to see which selections they relate to, along with any caveats or disclaimers.

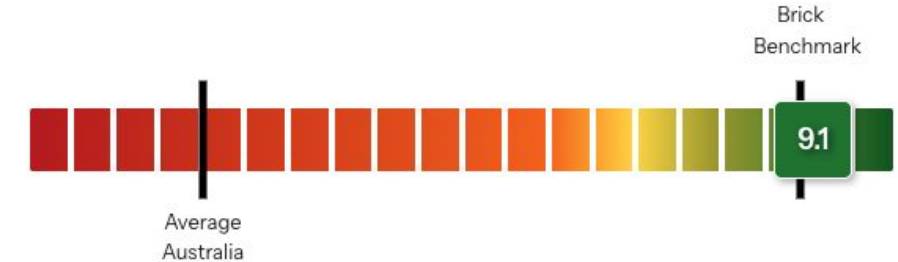
Your Design

Component	Total CO ₂ e	Measure	Area/Volume	Qty/m ²	kg/unit
Roof Construction Clay Tiles	7490.80kg	0.61kg CO ₂ e/kg	x 245.60 m ²	x 10.00	x 5.00
Ceiling Insulation Glasswool Batt*	4615.20kg	4.00kg CO ₂ e/m ²	x 192.30 m ²	x 6.00	-
External Wall Construction Fibre Cement Weatherboard*	4037.63kg	26.00kg CO ₂ e/m ²	x 155.29 m ²	x	-
External Wall Construction Clay Brick (230mm x 110mm x 76mm)*	8457.62kg	0.32kg CO ₂ e/kg	x 155.29 m ²	x 48.63	x 3.50

Insights

Energy Rating

How well your home performs. The average Australian home sits around 2 stars, while we believe 8 stars is the best value for money.



Your house is **9.1** stars while the benchmark house is **8.9** stars (higher is better).

[Learn more about NatHERS Ratings](#)

Yearly Estimated Power Bill

Your Design vs Brick Benchmark
\$1059 vs **\$1059**

Yearly Estimated Power Usage

Your Design vs Brick Benchmark
2579 kWh vs **2579 kWh**

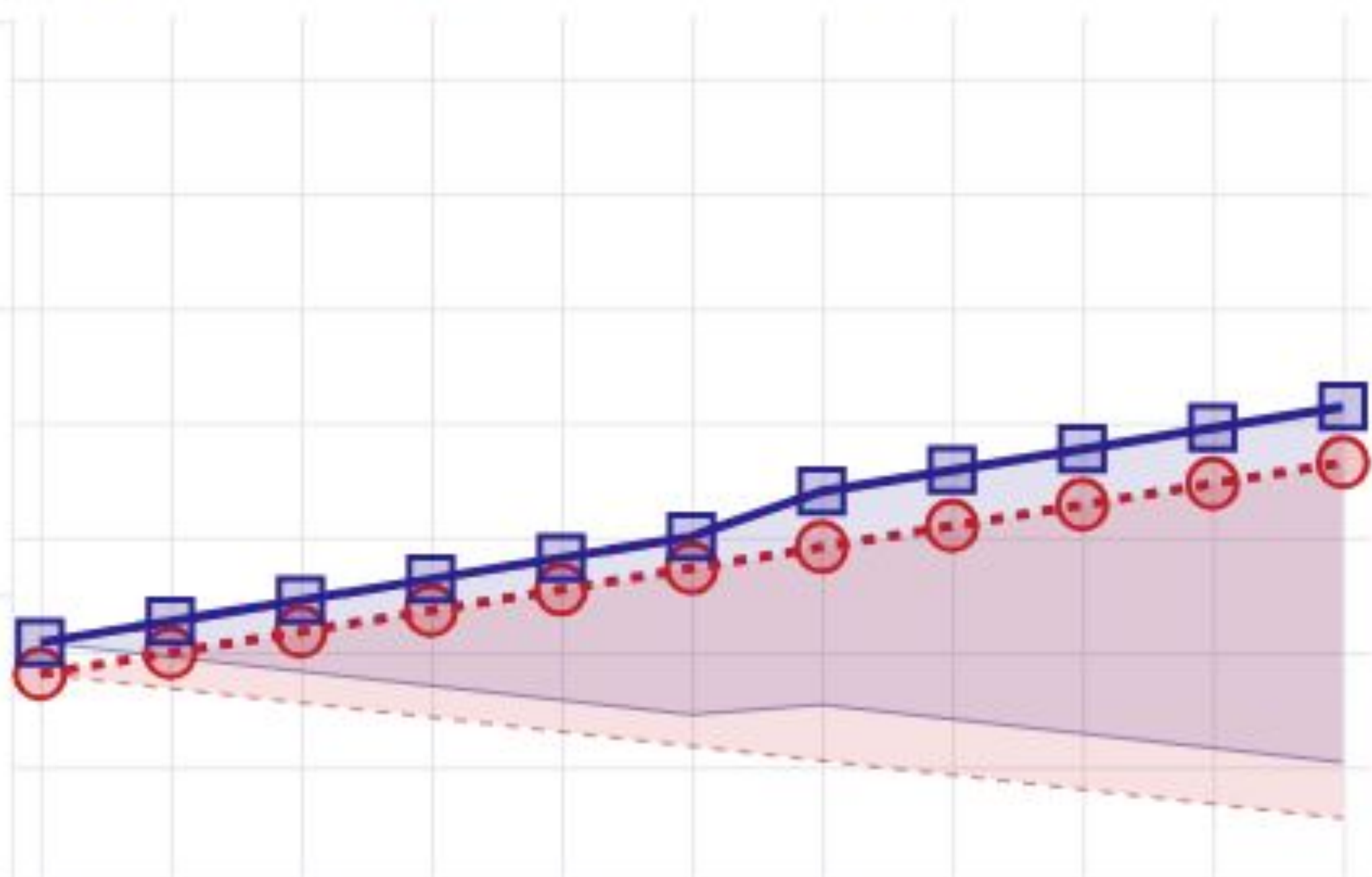
■ Your Design ● Brick Benchmark ● Solar Offset Potential

150t CO₂e

100t CO₂e

50t CO₂e

0t CO₂e



03

Reverse brick veneer and the 10 Star Home

One house, two questions: what did the wall do, and does the data back it up?



THE 10 STAR HOME, WOODFORDE SA

A normal-sized house on a normal block

10.0★

NatHERS certified
3.0 MJ/m² heating + cooling

310 m²

west-facing suburban block

135 m²

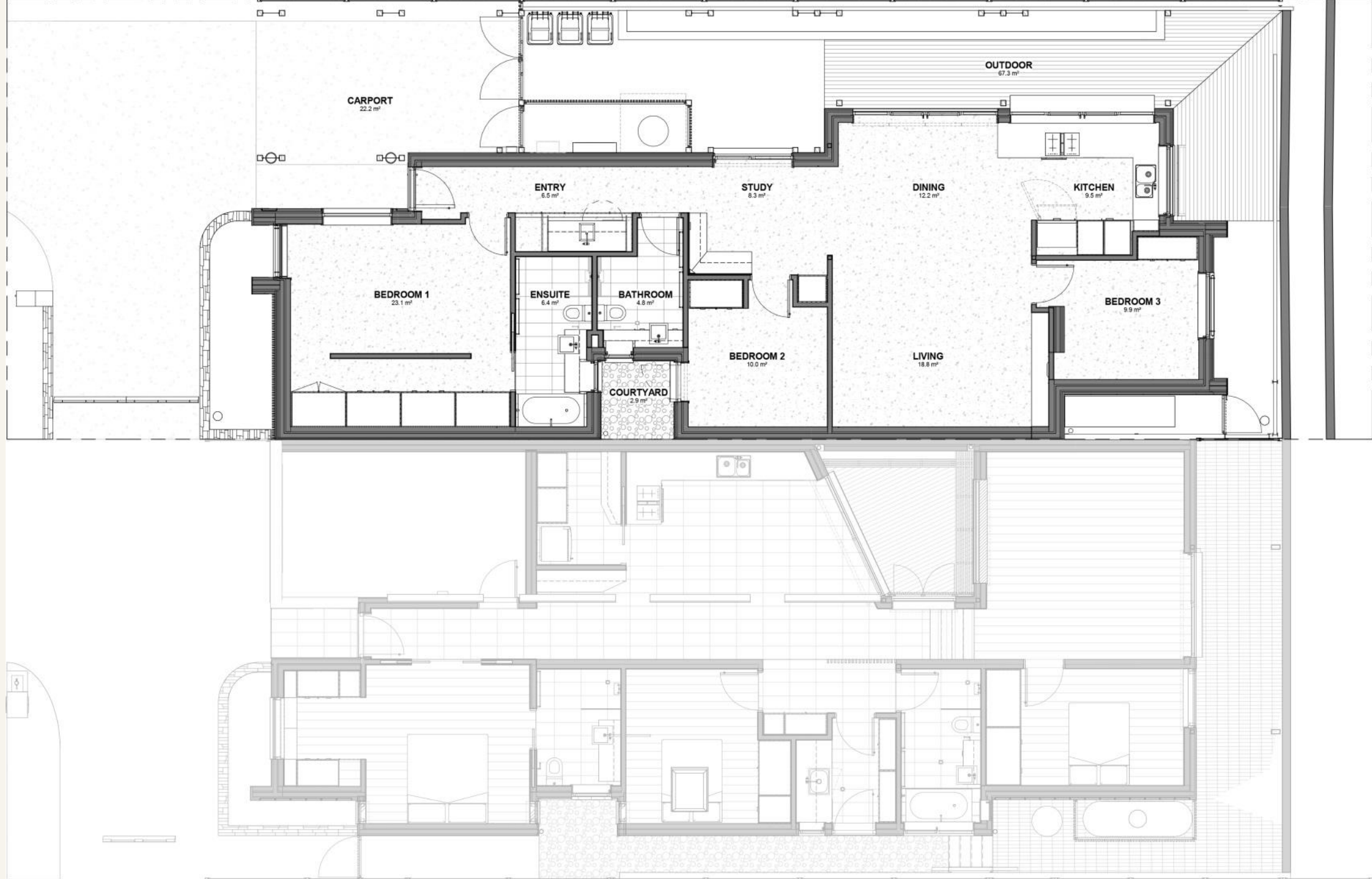
single storey, 3 bedrooms
111 m² conditioned

162 m²

of internal brick mass walls
(52 m³ of brick)

Design: SUHO · Builder: Woolcock Construction · Bricks: PGH (East Hampton, made at Golden Grove SA)

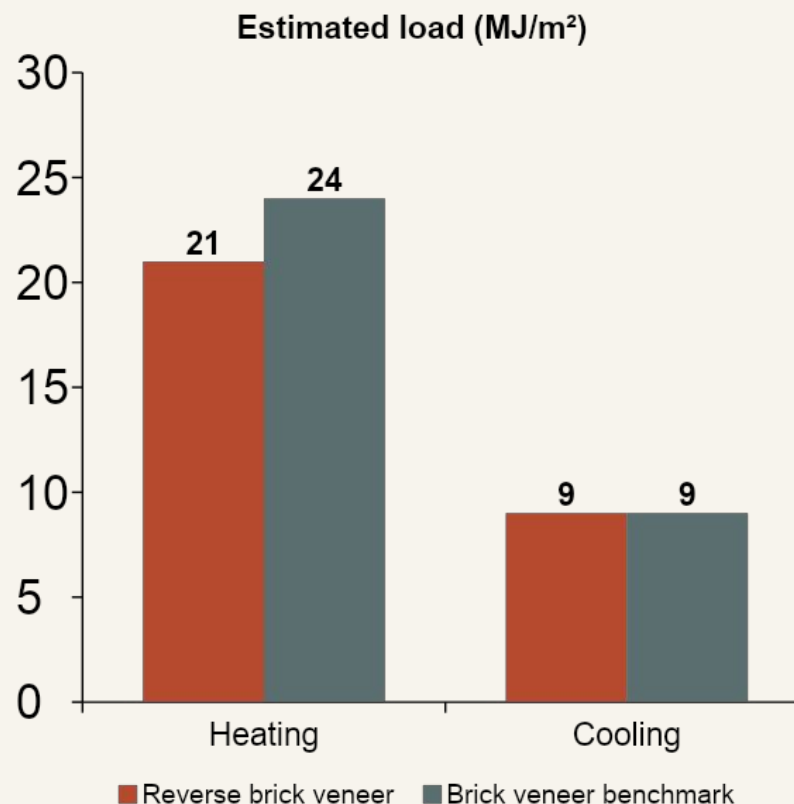
2021 MBA National Excellence Award, Environment & Energy Efficiency



Reverse brick veneer cuts heating demand against the brick veneer benchmark

The setup

- Adelaide SA, NatHERS climate zone 16
- Single storey house preset (the 10 Star Home is single storey)
- Construction preset: Reverse Brick Veneer House
- Performance preset: Pioneering Performance (R6 ceiling, R2.7 wall batts, high-performance glazing)
- Compared with the automatic Brick Benchmark: same house, brick veneer walls



-12.5%

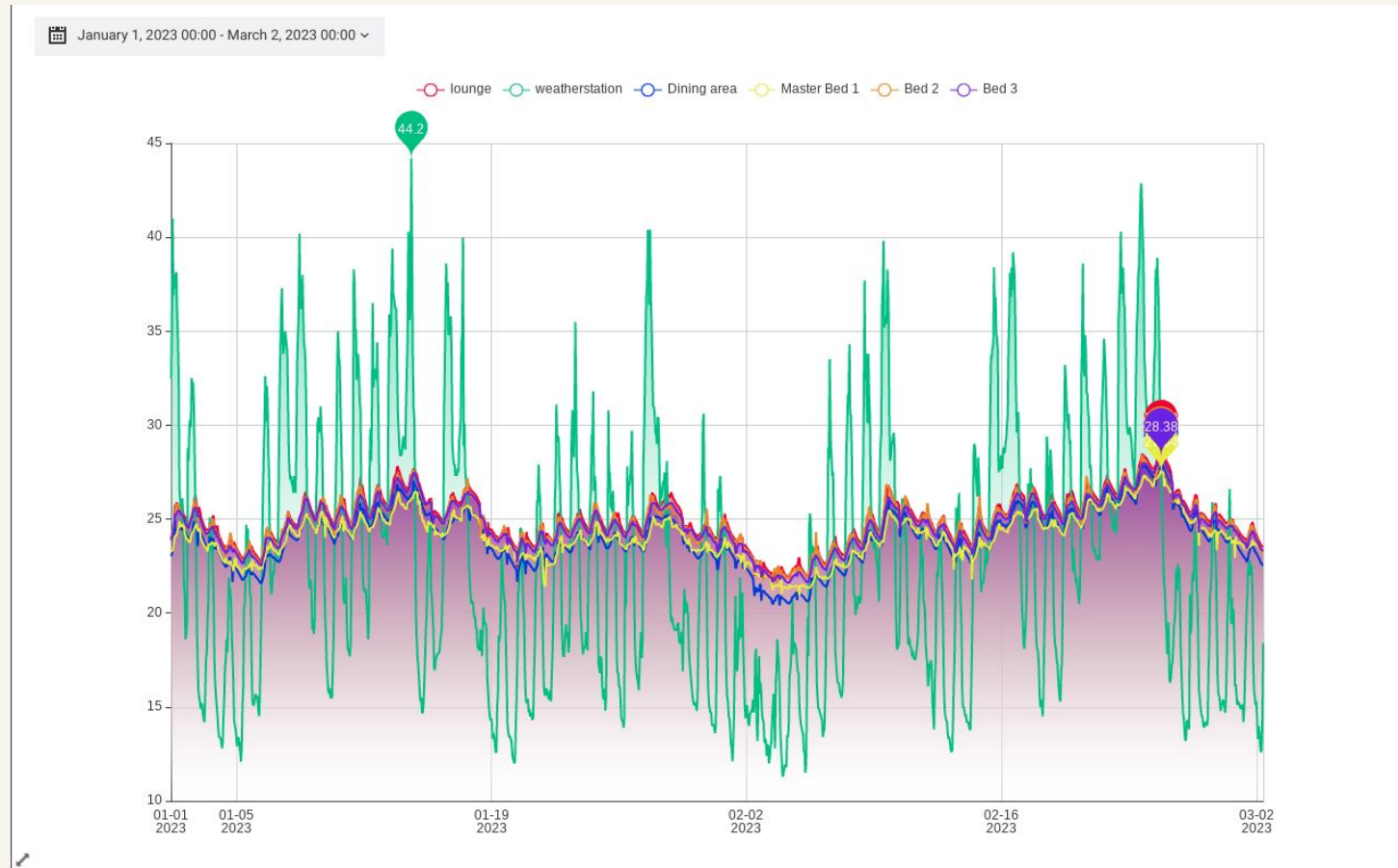
heating load with the
brick moved inside

9.1★

Think Brick Home Comfort Calculator (v5.0.0 beta), run 12 Oct 2026. Guidance estimates, not a NatHERS certificate.

DOES IT WORK IN PRACTICE?

Measured: outside swings, inside barely moves



Jan-Mar 2023: weather station (green) vs lounge, dining and bedrooms

9.7°C → 1.0°C

average daily swing, outside vs lounge
(Feb-Aug 2021, 4,827 hourly readings)

44.2°C → 28.4°C

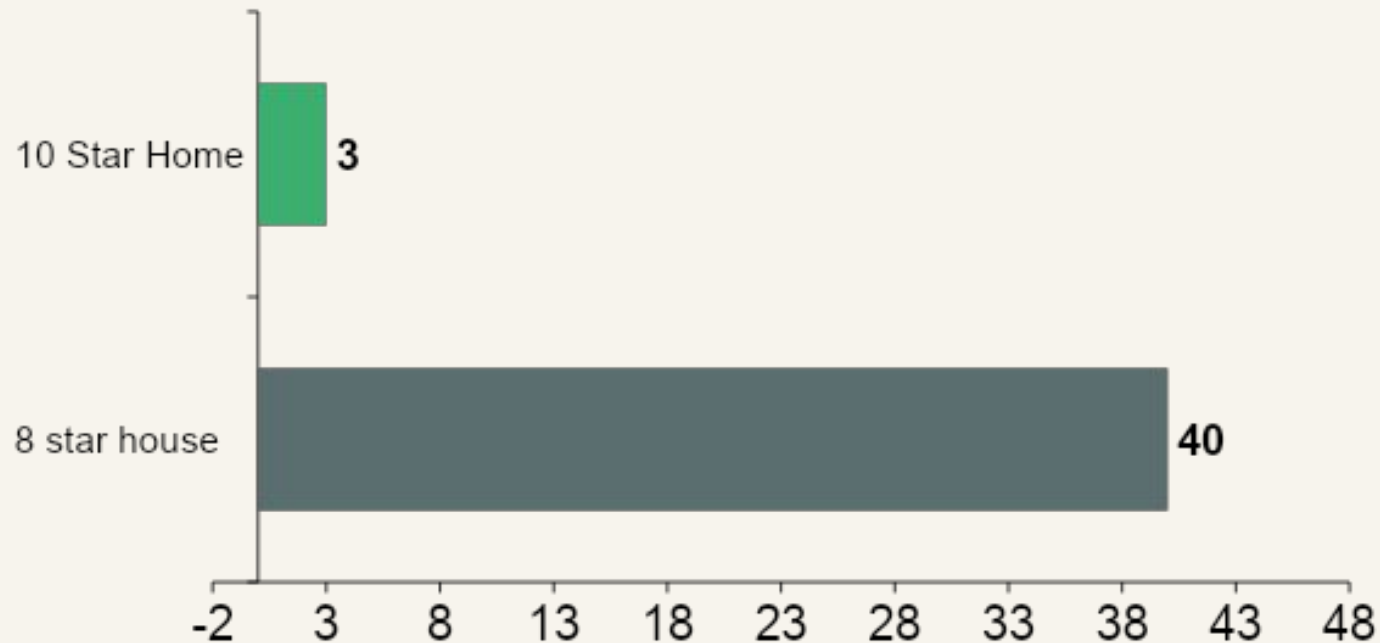
hottest outside reading vs warmest
inside reading, summer 2023

< 27°C

lounge through a 40°C+ heatwave
with ceiling fans only

THE RESULT

Thirteen times less heating and cooling than an 8 star house



Annual heating + cooling load, NatHERS. 8 star comparison from SUHO modelling (R7.7 roof, R3.8 wall).

Insulation and glazing stop heat getting in and out.

Internal brick mass evens out what is left, so the house needs almost no heating or cooling at all.

Where the brick goes is as important as using brick

Put the mass inside.

Reverse brick veneer couples 162 m² of brick to the rooms; brick veneer keeps it outside the insulation.

Keep it exposed.

Covering brick with plasterboard throws away the benefit. Leave it face or rendered.

Test it before you build.

The Home Comfort Calculator shows the effect of one change against the Brick Benchmark in minutes.

It holds up in real life.

Measured inside swing of about 1°C a day, and under 29°C through a 44°C summer.

Thanks!

TRY THE CALCULATOR

thinkbrick.com.au/sustainability/home-comfort-calculator

TOUR THE 10 STAR HOME

www.mycoolhome.com.au/insights/10-star-home-adelaide

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