

Energy Efficiency Design Card

Barn Brisbane

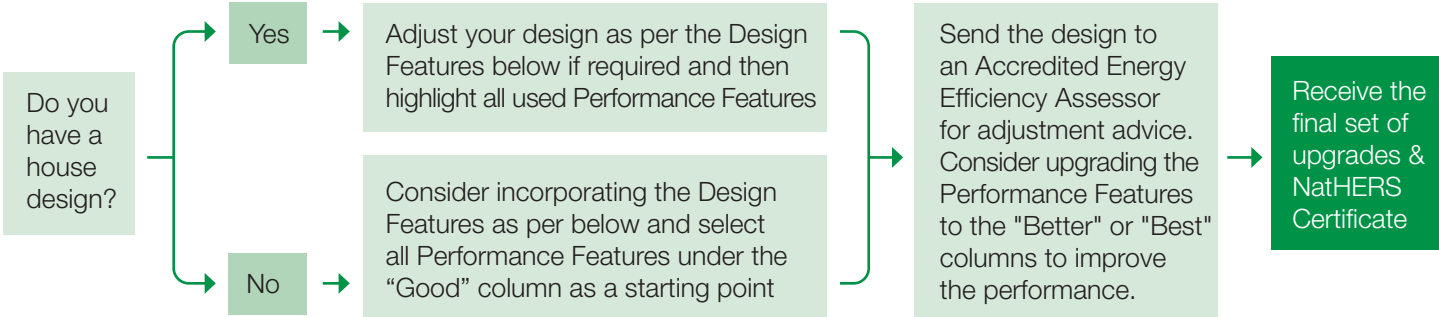
Climate Zone 2 | Warm Humid Summer, Mild Winter

September 2023

The purpose of this Design Card is to aid the creative process of designing a dwelling, ensuring that the chosen direction aligns with both aesthetic and performance goals. Please keep in mind that the listed "Design Features" are key considerations, but they do not include all aspects that can be required to achieve the desired design look.

Additionally, the "Performance Features" provide a summary of features that can be incorporated into the design to achieve the desired thermal performance, such as a 6 or 7-star rating. However, these features are meant to serve as initial guidance in the design process. It is essential to subsequently have an Accredited Energy Efficiency Assessor review the design to determine its suitability.

How to use the Design Card



Design Features

Modern farmhouse designs have been on-trend for a while. It connects well with the Scandinavian style which is characterised by the minimalist philosophy that encourages simplicity. It creates a strong relationship between the design elements and nature. Barn style homes are loved in Australia for their vaulted ceilings, open plan living spaces and bold street presence.



Recommended
Hardie™ Products



Hardie™ Oblique™ Cladding



Axon™ Cladding



Stria™ Cladding

Steeply Pitched Roof

A beautifully symmetrical gable roof should be elevated. It should be high set with a pitch of 35 to 45 degrees using corrugated steel sheets, not tiles.

Barn Shape

Homes should be designed to make the barn shape appear separate from other parts of the house, by allowing it to sit forward from of other parts of the house. The result should be a simple diagrammatic form.

Craftsmanship

Cladding detail is a must for a feel of craftsmanship. Use Hardie™ fibre cement vertical joint cladding or weatherboard cladding that's uniform and can handle dark colours.

Long Rectangular Windows

Floor to ceiling windows accentuate the length of the house. Combine with outdoor decks and large sliding doors to connect with nature.



Note: This card is designed to fit an A3 page if printed. Please consider the environment before printing.

Performance Features

BRISBANE		GOOD	BETTER	BEST
WINDOWS	Windows Glass	Toned glass	Low-E glass	Low SHGC Low-E glass
	Window Frame	Aluminium Standard Single Glazing	Aluminium Standard Double Glazing	Thermally broken Double Glazing
	Orientation ¹	E, SE, S, SW & W	NW & NE	N
	Openability ²	None	Include full openability on north/south windows	Include full openability on all windows
INSULATION	Shading	Inclusion of window shrouds	Inclusion of awnings	Increase eaves/soffits
	External Wall R-Value ³⁵	R1.5	R2.0	R2.5
	Suspended Floor Insulation	R2.0	R3.0	R4.0
	Slab Insulation	Waffle Pod	Raft Slab	Raft Slab + R1.5 Slab Edge Insulation
	Ceiling Insulation	R4.0	R5.0	R6.0
VENTILATION	Wall Cavities	Reduce wall cavities on all external walls	Include wall cavities on east/west facades	Include wall cavities on all external walls
	Ventilation	Include ceiling fans in living areas	Include ceiling fans in bedrooms	Include ceiling fans in bedrooms and living areas
	Reflectivity	Include wall reflective sarking	Include roof reflective sarking	Include wall and roof reflective sarking
Colour		Dark tones	Medium tones	Light colours

¹ Orientation refers to the main location of windows in relation to the path of the sun.

² On double storey dwelling only, installing fall protection screens on the upper storey windows enables the use of windows with full openability, increasing cross-flow ventilation and potentially reducing the cooling loads and proving a better thermal performance.

³ Inclusion of internal walls insulation on the garage area can act as a barrier to the external environment, potentially improving the energy rating.

⁴ The Queensland Government can concede a 1 star credit to dwellings located in Climate Zones 1 or 2, provided:

- Inclusion of an outdoor area as described in S42C2(3) from the NCC 2022 Vol 2.
- The roof covering the outdoor area achieved a total R-Value of at least 1.5 for downward heat flow.
- The outdoor area includes a ceiling fan with a speed controller and a blade rotation diameter of at least 900mm.

Refer to the Queensland Development Code MP 4.1 Sustainable Buildings for further information.

⁵ External Wall Insulation refers to the overall R-Value of the wall as a system.

⁶ Thermal mass can slow down the rate at which the dwelling warms up and cools down and must be used strategically to moderate internal temperatures. Thermal mass can be found on different elements of the dwelling, such as concrete slabs, tiled finished floors or walls, among others.

External Walls

The following wall systems have been assessed in accordance with AS/NZS 4859:2018 "Thermal Insulation Materials for Buildings. Part 1: General Criteria and Technical Provision, and Part 2: Design" and provide an R-Value as required on the Performance Features Table.

GOOD

R-Value

Summer: 1.93

Winter: 2.04

BETTER

R-Value

Summer: 2.26

Winter: 2.37

BEST

R-Value

Summer: 2.69

Winter: 2.84