

Sustainable Home Guide

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Helping you achieve your sustainable home design goals



Simple changes for a leading sustainable home design

It's easy to design your home to incorporate leading sustainable design elements.

Brickworks is helping build beautiful and sustainable homes that are energy efficient, healthy and resilient.

Sustainable home standards are now available, providing guiding design principles. Brickworks' Sustainable Home Guide matches the sustainable attributes of our products to these principles.

Our sustainable home guide is designed to help you achieve your sustainable home design goals.



Design principles for a more sustainable home

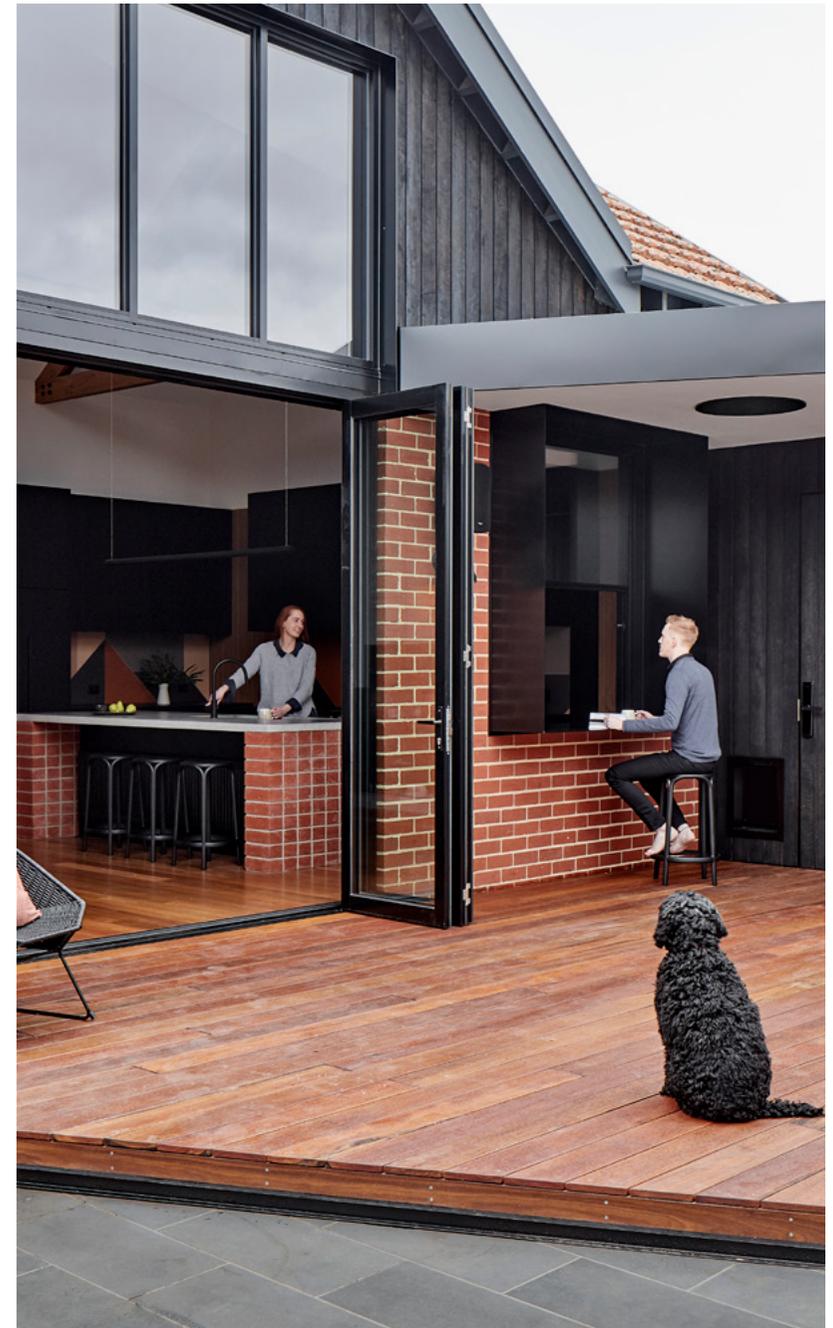
Our sustainable home guide is designed to help you achieve your sustainable home design goals. This guide is informed by leading standards such as Green Star Homes by Green Building Council of Australia and LEED for Homes by U.S. Green Building Council.

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How we can help

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Brickworks offers a range of products that help designers achieve sustainable design ratings, including National Home Energy Rating (NatHERS), Green Star Homes and LEED for Homes.

Brickworks also offers advisory and training sessions to architects and designers on thermal design of housing and understanding solar opportunities.



An Energy Efficient Home

Leading environmental home designs are energy efficient, draught sealed, supporting renewable electricity generation and use.

This is important as 57% of built environment emissions* comes from our homes. Energy efficient homes save costs, through lower energy bills, are comfortable, and can be designed to emit zero emissions during operation by generating and using renewable energy.

How it works

Thermal comfortable homes, energy efficient, reduced heat gain and loss, reduced energy costs, supporting renewable electricity generation and use. Home occupants educated on optimal home living.



Tip #1

Home Energy Use

Thermal mass products such as bricks and roof tiles can reduce heating and cooling bills by 40% annually using cavity brick compared to lightweight construction. This is because they act like a thermal battery, absorbing heat during high temperatures and releasing them during cooler temperatures.



Guiding sustainable design principles for home energy use include:

- Higher home energy efficiency ratings such as Greenstar, NatHERS or LEED
- Reduction in heat gain and loss
- Energy efficient
- Reduce energy costs
- Improve climate control

Key points on using bricks and roof tiles for a more energy efficient design:

- Bricks are a thermal battery keeping your home cooler in summer and warmer in winter.
- Brick homes are more energy efficient than those constructed with lightweight materials.
- A home constructed from bricks can reduce your energy bills for heating and cooling by 40%. [Read More](#)
- Incorporating bricks can increase your energy efficiency star ratings.
- Leading home builders offer homes designs with high energy rating.
- Roof tiles improve energy efficiency. Testing of similarly coloured roofing products shows roof tiles transfer less heat and reduce cooling costs.

Thermal Research: Best Building Products for Higher NatHERS Ratings

Bricks and brick veneer enable higher ratings in the National House Energy Rating scheme than lightweight, increasing GreenStar Home ratings.

Based on independent research from the University of Newcastle



Tip #2

Support Home Renewable Energy

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Bristle Roofing partners with specialist energy providers in the solar field to provide solutions to their customers.

Brickworks offer training sessions for architects and designers in understanding solar opportunities and incorporating solar into home design.



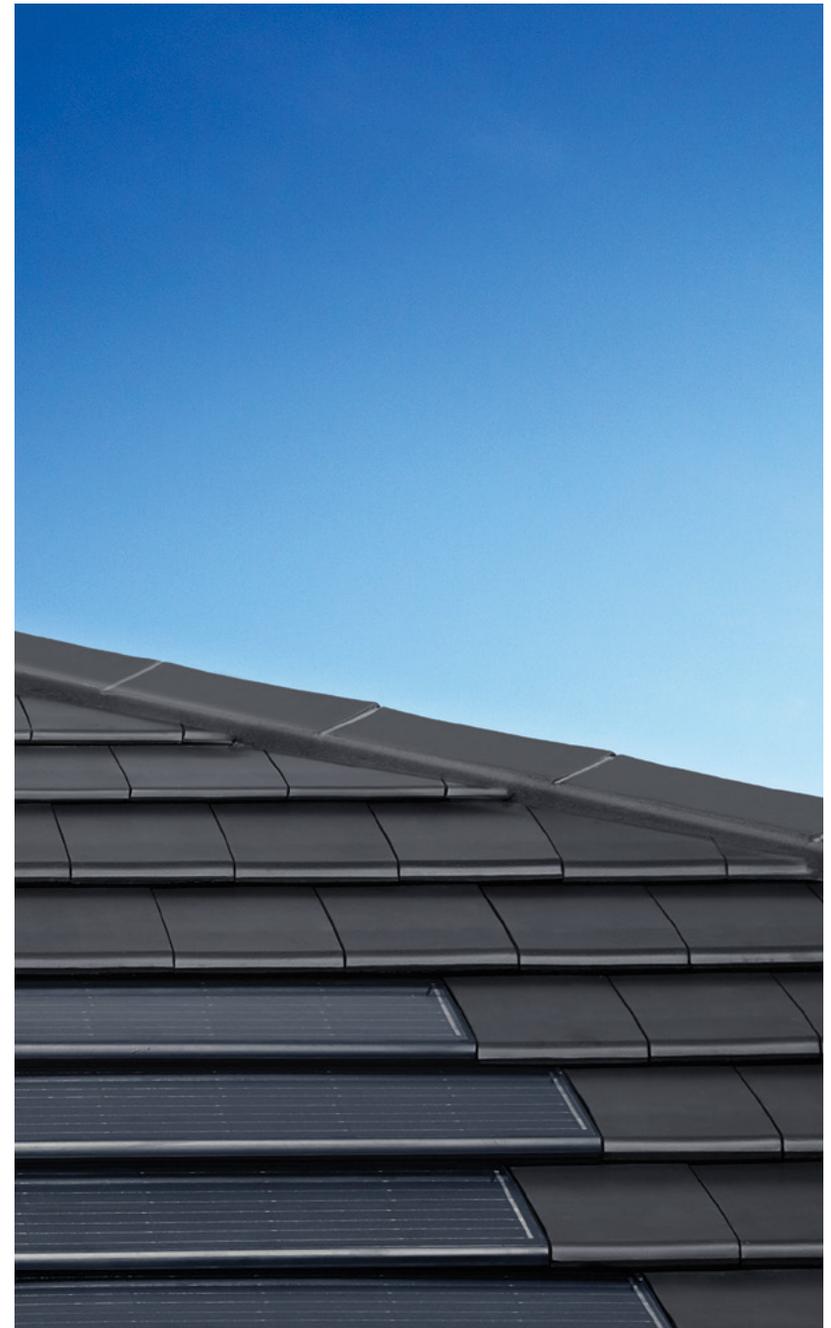
Guiding sustainable design principles for renewable energy include:

- Generate or use renewable energy to balance annual energy use (net zero)
- Reduce energy costs
- Zero emissions through clean energy



How Brickworks support renewable energy for your home:

- Bristle partners with specialist energy providers in the solar field to provide solutions to their customers.



Tip #3

Go Carbon Neutral

Carbon Neutral products offset carbon emissions from homes. Brickworks has introduced a carbon offset program, certified under the Australian Government's Climate Active Program.



Guiding sustainable design principles for renewable energy include:

- Provide information on the Climate Active carbon neutral building standard;

How Brickworks products support net zero home design:

Carbon Neutral options

- More than 70 types of bricks manufactured from the Brickworks Longford Plant are Carbon Neutral.
- Our lightweight clay brick design reduces the amount of clay and energy to fire bricks.
- Brickworks has introduced a carbon offset program, which is certified under the Australian Government Climate Active Program.

Reducing embodied carbon in our products:

- Our Low Emission Technology Statement outlines our commitment to the use of state-of-the-art high efficiency brick kilns and alternative fuels to fire our bricks.
- Our Sculptured Sands range is part fired with biogas reducing embodied carbon.
- All products from our Longford plant, TAS, including the Daniel Robertson range, are part fired by biomass with the kiln's main fuel source being sawdust. Many products from our Horsley Park Plant 21 and Plant 23, NSW, are part fired by biogas..
- Currently in FY21 12.9% of raw materials used to manufacture Brickworks Australia products are recycled, including recycled clay from Australian infrastructure projects, fly ash and by-products.
- Bristle Roofing partnered with Swinburne University of Technology in Melbourne, VIC, to optimise the mix design of concrete roof tiles with a focus on reducing cement requirements.
- Austral Precast utilises material substitution to provide GreenStar rated concrete.
- Terraçade retains its Ecospecifier Verification to qualify its leading position as a façade system that is worthy to be used in green building projects.

Make your next project carbon neutral with Brickworks

We invite you to apply for complimentary carbon offsets across our Australian-made range of clay bricks and pavers. We are looking for projects that demonstrate climate sensitive design and have minimal impact on the environment now and into the future.



A Healthy Home

Leading environmental home designs are ventilated, comfortable, with products that are better for you.

The impact our homes have on us physically is significant. We spend 90% of our time indoors with two thirds of this time at home.*

How it works

A healthy home is designed to be well ventilated and to prevent the growth of mould. It is designed to minimise the entry of pollutants, such as smoke. It is thermally comfortable and uses materials that are low or non-toxic. It also includes high quality lighting.



Tip #1

Reduce material toxicity

Brickworks products are the natural healthy choice as they emit zero toxic Volatile Organic Compounds.



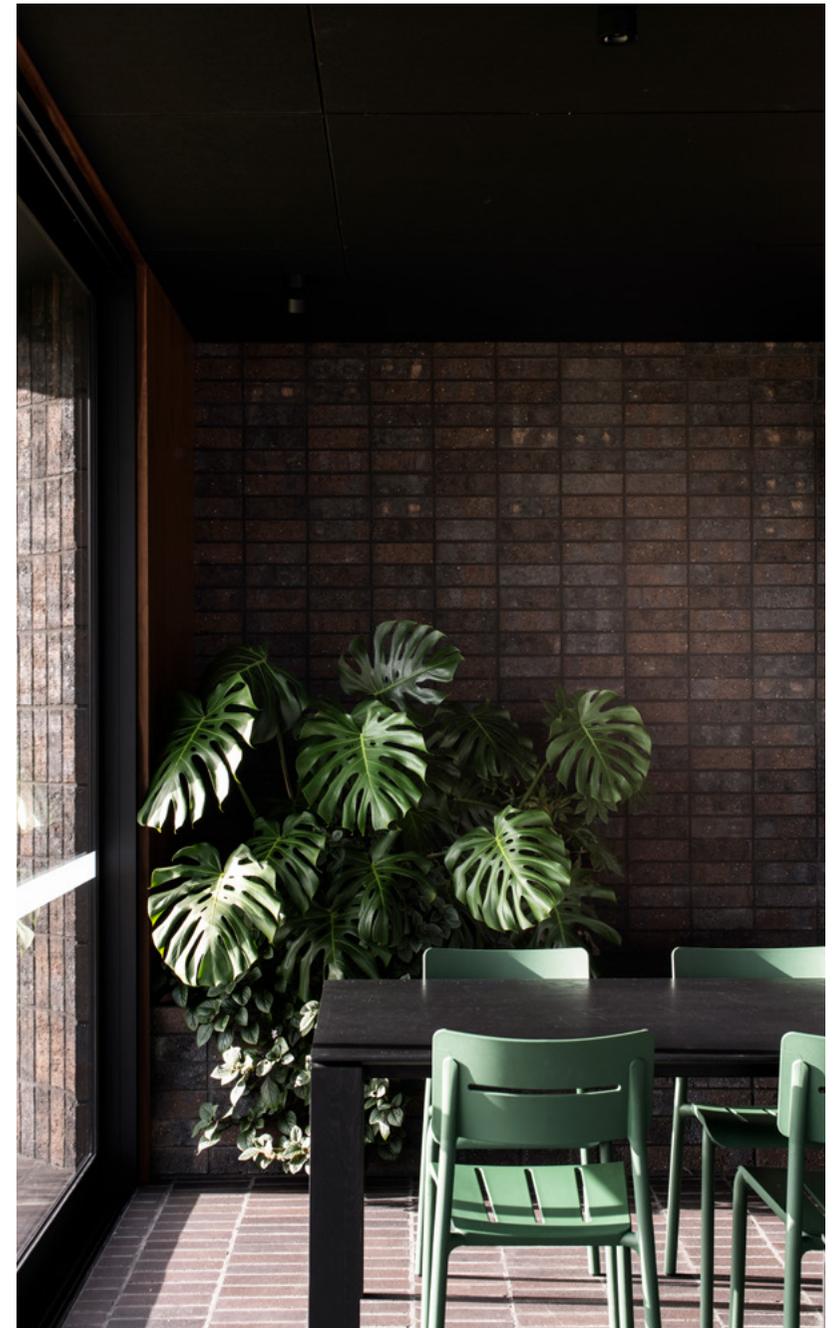
Guiding sustainable design principles for reducing material toxicity:

- Paints, sealants and adhesives used in constructing homes have emissions associated with them which continue after they have been installed. These Volatile Organic Compounds (VOCs) have negative human health impacts including headaches, lethargy and respiratory problems like asthma. To reduce these health impacts, materials with high VOC must be avoided.



How Brickworks products reduce material toxicity for your home:

- Brickworks products emit zero VOC's
- Bricks are the natural healthy choice as they breathe and allow moisture to escape.
- Some Austral products even hold additional labels certifying the absence of toxic materials (sometimes known as "The Red List"). For example, Nubrik Traditional and Artisan Ranges hold the 'Declare' label. This label means the bricks have been "declared" Living Building Challenge Red List free.



Tip #2

Moisture management

Brickworks products are the naturally healthy choice as they breathe and allow moisture to escape. Bricks and roof tiles are also maintenance free, and do not rot or rust.



Guiding sustainable design principles for the management of moisture include:

- Prevent moisture, condensation and mould
- Install weather protected barrier between windows and walls
- Avoid breaks in insulation layers causing thermal bridges
- Ensure adequate roof drainage
- Allow internal moisture to escape



How Brickworks products assist in moisture management for your home:

- Allow moisture to escape
- Are breathable
- Are natural and healthy
- Bricks are maintenance free, they don't fade, rot or rust.



Tip #3

Air Quality

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Brickworks products are breathable, allow moisture to escape, and are natural and healthy.



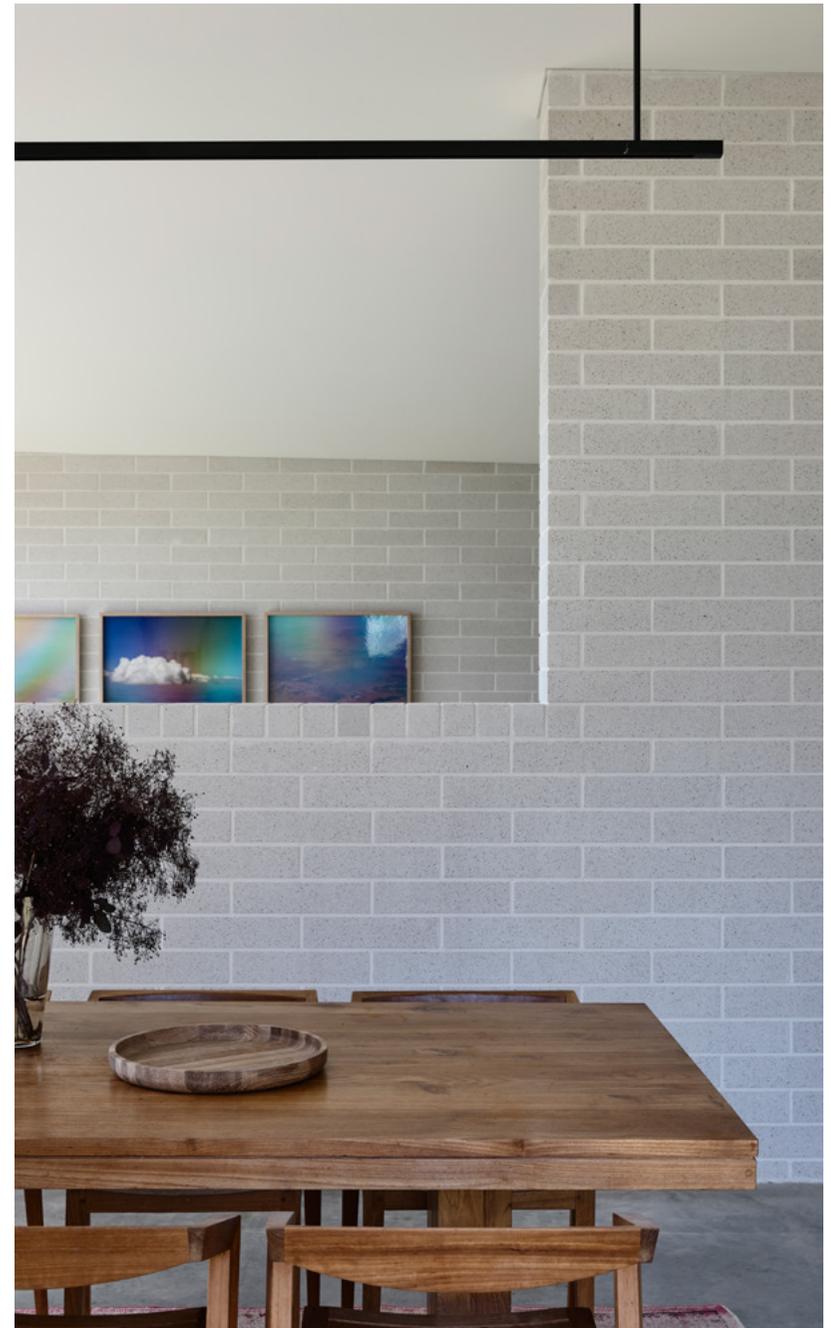
Guiding sustainable design principles for improved air quality include:

- Minimise pollutants and provide fresh air
- Circulation of fresh air
- Location windows and doors to optimise air flow
- Limit air pollutants from kitchens, bathrooms, laundry, garage



How Brickworks products support air quality for your home:

- Allow moisture to escape
- Are breathable
- Are natural and healthy
- Bricks are maintenance free, they don't fade, rot or rust.



A Resilient Home

A resilient home is one that has been built to withstand even the harshest conditions and environmental changes, such as bushfires, flooding, and heat stress. A resilient home is better for you and the environment, providing safety and security whilst reducing energy and water use.



Tip #1

Resilience

Make your home design durable for the long term. Only Austral Bricks and Bristile Roofing* products are **guaranteed for 100 years**.



Guiding sustainable design principles on how to create a resilient home:

- Extreme weather events impact a home's durability
- Assess home exposure to heat, bushfire, flooding and hail
- Implement measures to withstand extreme weather events and natural disasters.
- Use long lasting, enduring and durable products to build your home.

About Brickworks:

During FY20, the Brickworks Bushfire Relief Initiative helped victims of the 2019 fires rebuild their homes, lending a hand to those who need it most.

How Brickworks provides weather resilient products for your home:

Austral Bricks

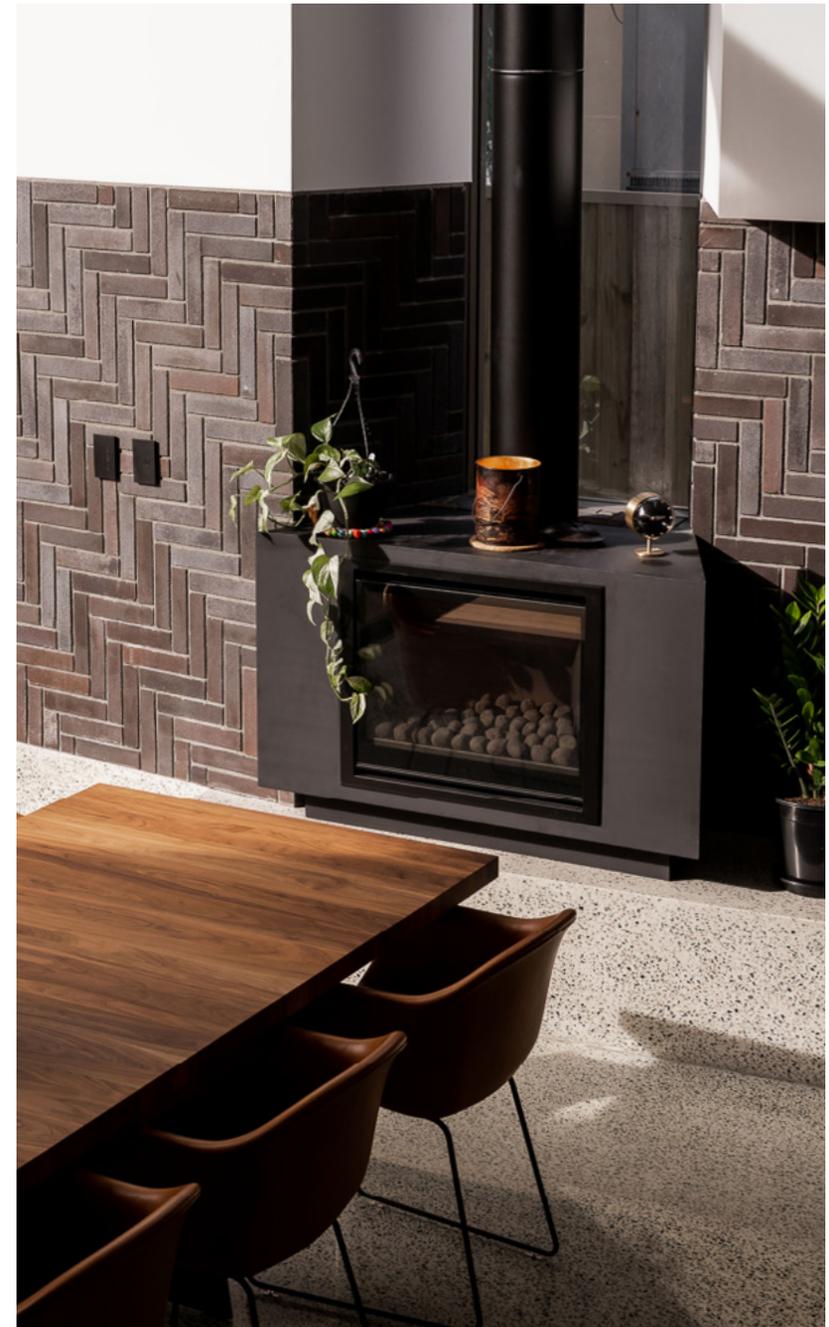
- Are fireproof, unlike glass and fibre cement that shatter and fail
- Are durable and colourfast for life
- Are maintenance free, don't fade, rot or rust.
- Only Austral Bricks are guaranteed for 100 years

Bristile Roofing tiles

- Are non-combustible; ideal for bushfire prone areas
- Are durable and limit hail damage
- The weight of concrete and terracotta roof tiles offer more resistance to high winds than lighter weight materials such as metal sheeting. If damage is sustained during a storm, you only need to replace the individual damaged tiles rather than entire sheets, as in the case of metal roofing.
- Enable minimised tile by tile maintenance and replacement

Austral Precast double wall

- Is fire resistant and non combustible
- Improves installation safety, time and costs
- Can be disassembled and reused



*Limited range

Tip #2

Heat Resilience

Testing shows roof tiles will reflect more heat away from the home than other commonly used roofing materials.

Roof tiles are available in more colour and profile combinations than any other commonly used roofing product in Australia. Bristile Roofing Light Collection provides an elegantly light range of appealing natural tones.



Guiding sustainable design principles to keep your home cooler:

- Urban areas with hard surfaces absorb, store and radiate heat
- Extreme heat impacts community liveability
- Heat increases energy demand for cooling homes
- Increased energy demand drives up energy costs
- Increase tree planting
- Reduce heat radiation through roofing materials and shade structures

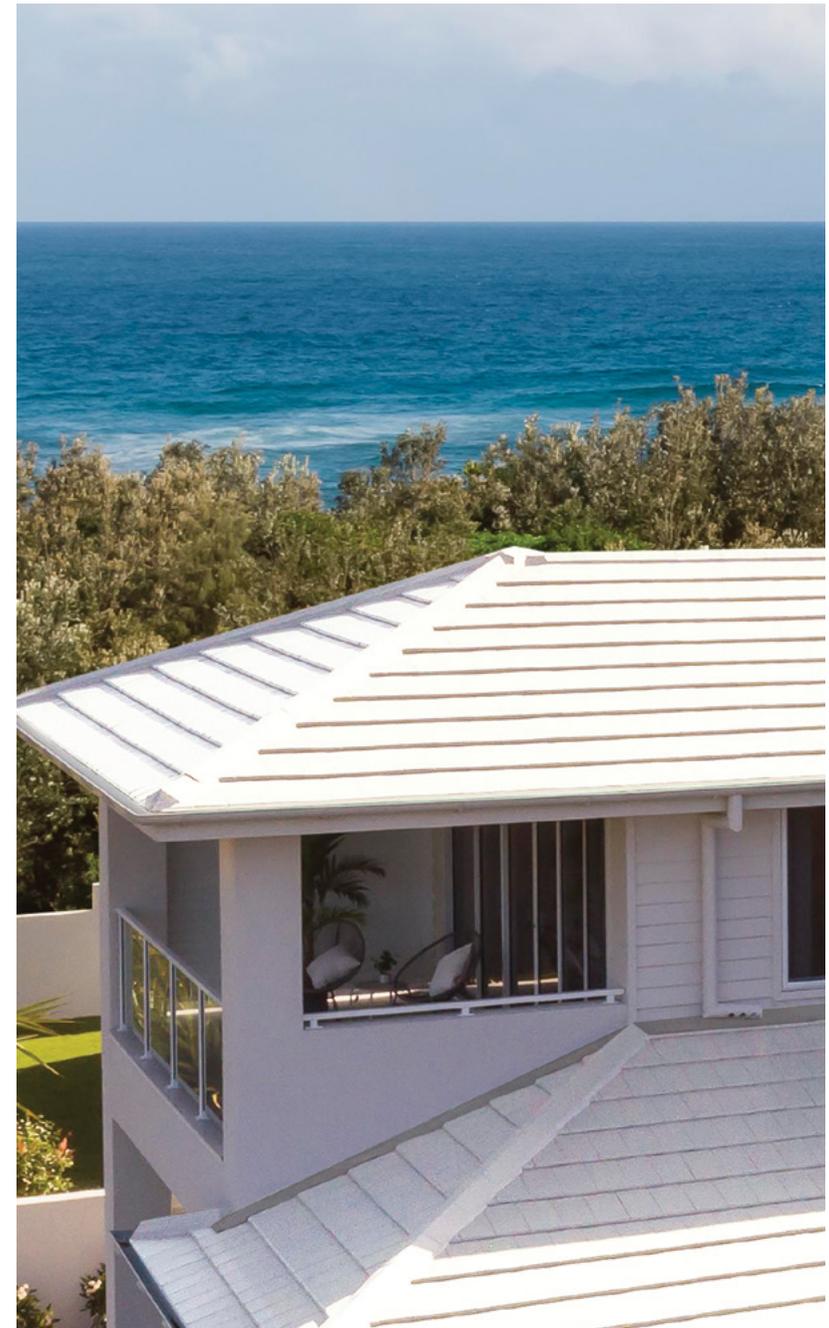
How Brickworks products help keep your home cool:

Bricks

- Provide human thermal comfort.
- High density materials that have the ability to effectively absorb and store heat energy keeping your home cooler in summer and warmer in winter.
- Reduce overreliance on artificial heating and cooling.

Roof Tiles

- Reflect heat away from the home
- Offer many colour and profile combinations
- Bristile Roofing Light Collection offers an elegant light range with natural tones



Tip #3

Water Management

Water run-off from terracotta and concrete tiled roofs is safe to use.

Austral Grasspave permeable pavement can contribute to water sensitive urban design by reducing impervious areas which can lead to poor stormwater quality and flow.



Guiding sustainable design principles for reduced water include:

- Installed water efficient fixtures and appliances
- Reduce water use and water bills
- Use alternative water sources for irrigation
- Install a rainwater tank
- Use collected rainwater for laundry and toilet

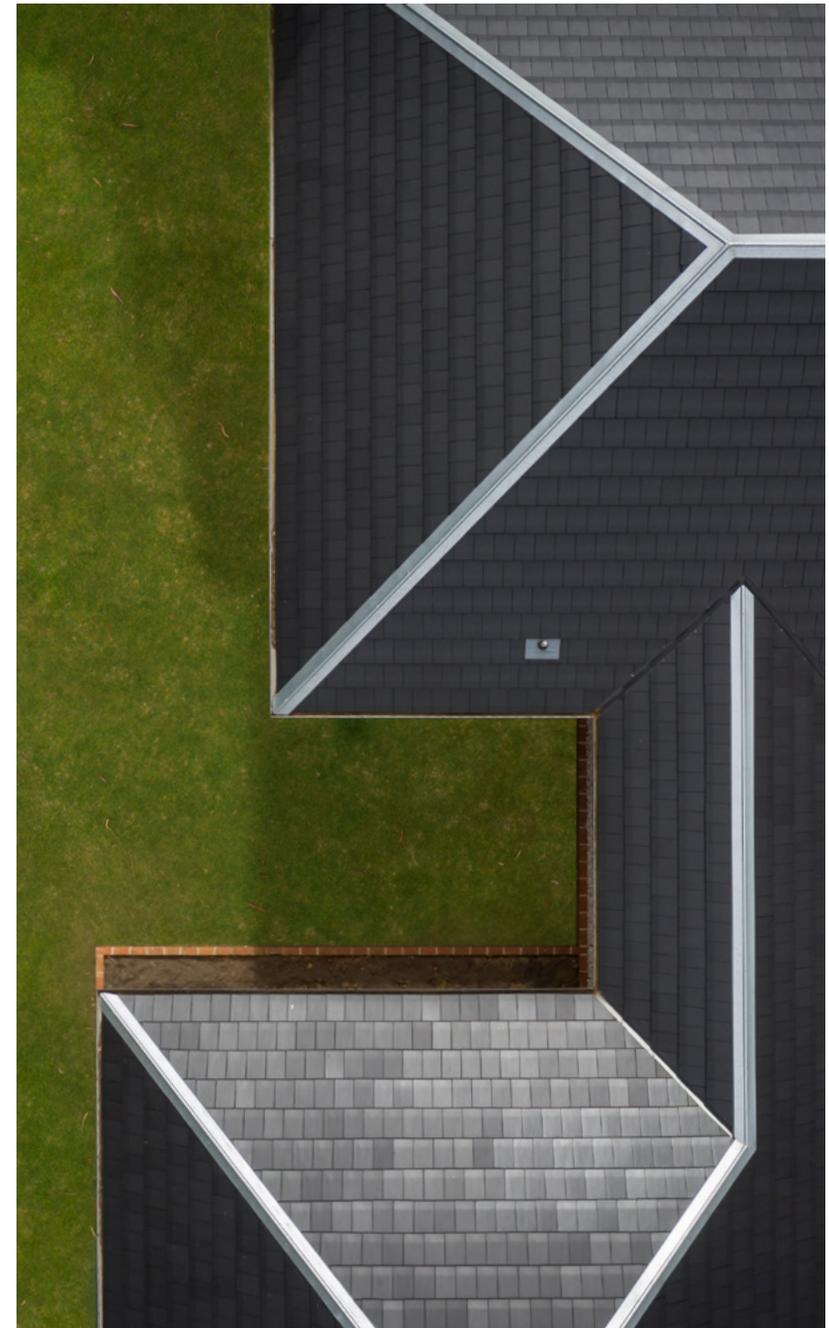
How Brickworks products support water management:

Bristle Roof Tiles

- Allow safe to use water to run-off for collection

Austral Masonry Grasspave Pavers

- Are porous, allowing water to drain away
- Contribute to 'water sensitive urban design'
- Improve drainage and flow of storm water
- May contribute to reducing localised flooding



Brickworks' genuine building products create the most beautiful and sustainable environments and places in Australia

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Further Reading

Online Resources

Additional resources from Brickworks



Thermal Research