

Energy Efficiency

How to reduce energy bills
increase thermal comfort and
reduce environmental impact.

Louisa Klopsteins

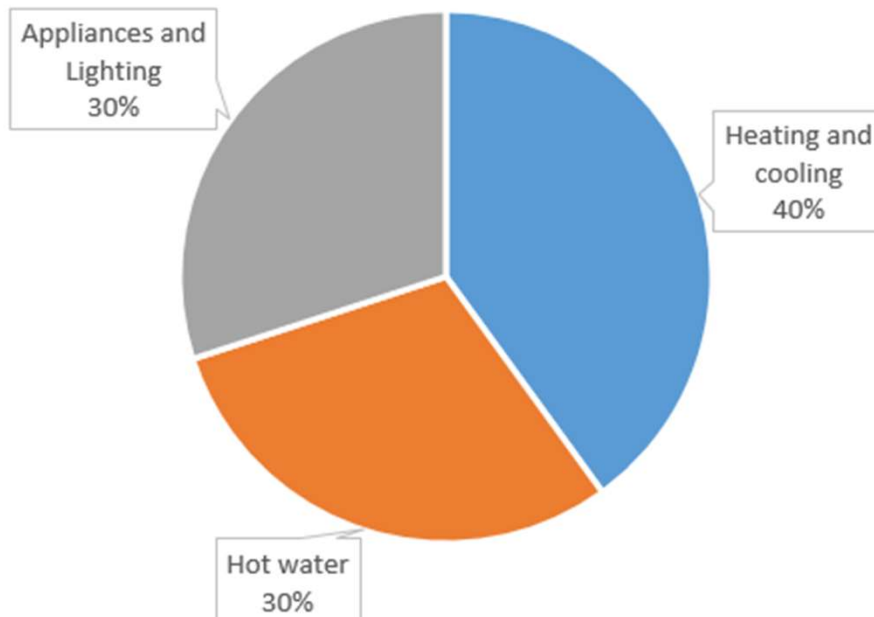
Accredited Residential Efficiency
Scorecard Assessor and thermal
performance Assessor



Where does your energy go?



Typical Household Energy Usage



Check you are on the best plan on government comparison site

<https://www.energymadeeasy.gov.au/>

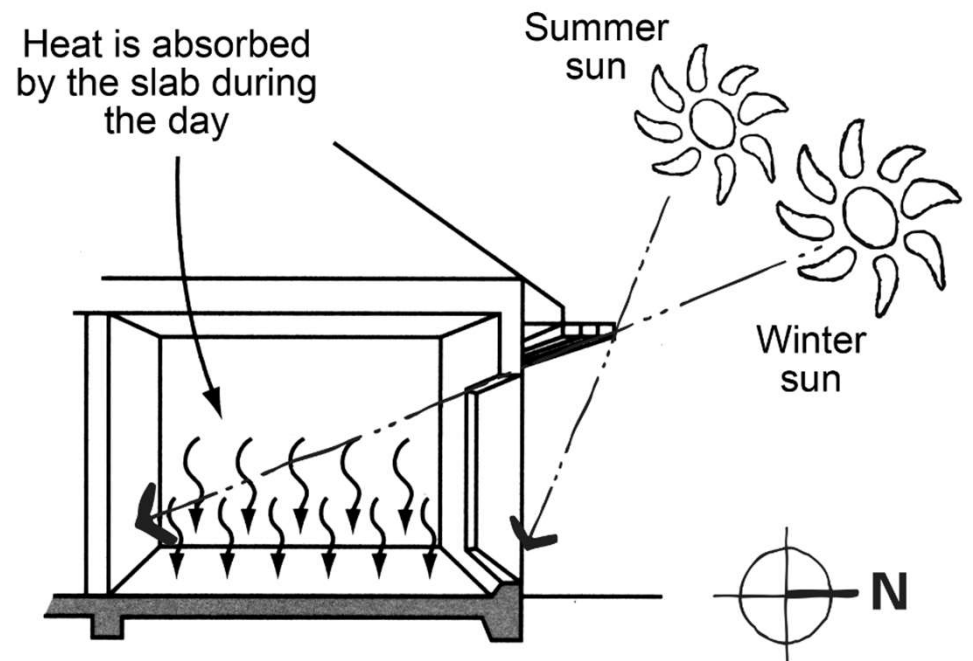


Consider energy monitor such as Powerpal



Passive Design

- **Passive Solar Heating**
- Using winter sun to warm thermal mass
- Insulation
- Orientation
- Zoning and layout of rooms
- Wall/floor types and construction material choices
- Windows and glazing
- **Passive Cooling**
- Ventilation
- Fans
- Positioning windows to catch breeze
- Shading, eaves, vertical shading
- Landscaping and vegetation



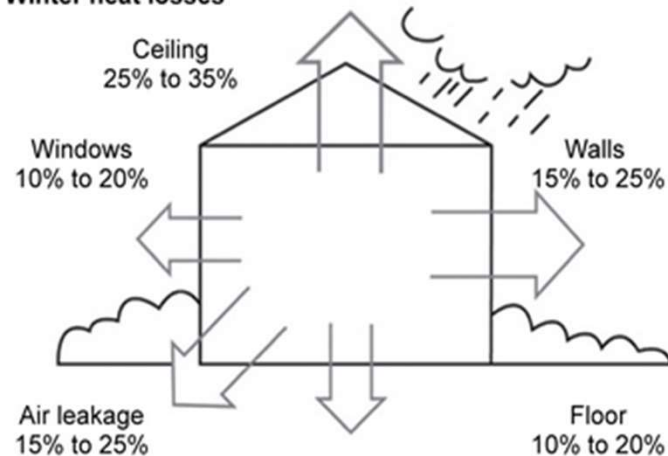
Thermal mass can significantly increase comfort and reduce energy consumption

Source: Sustainable Energy Authority Victoria

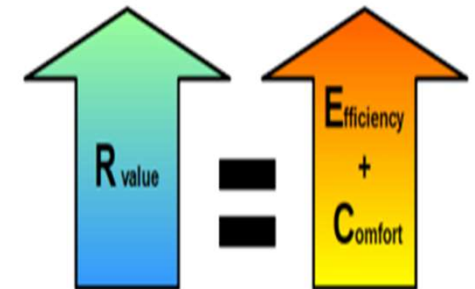
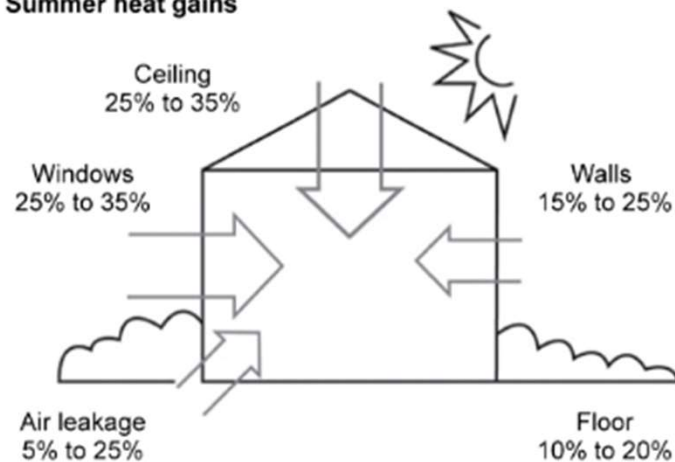
Improve thermal envelope

- Insulation and draught proofing is a key part of any passive designed home, helping to keep heat inside the home in winter and outside the home in summer.

Winter heat losses



Summer heat gains



Source: www.yourhome.gov.au

Thermal Mass Thermal Lag

Appropriate thermal mass stabilizes temperature because there is a delayed release of heat.

Thermal mass in the wrong places can make your home colder in winter and hotter in summer.



Diagram: How thermal mass works.

Reverse Cycle Air Conditioners



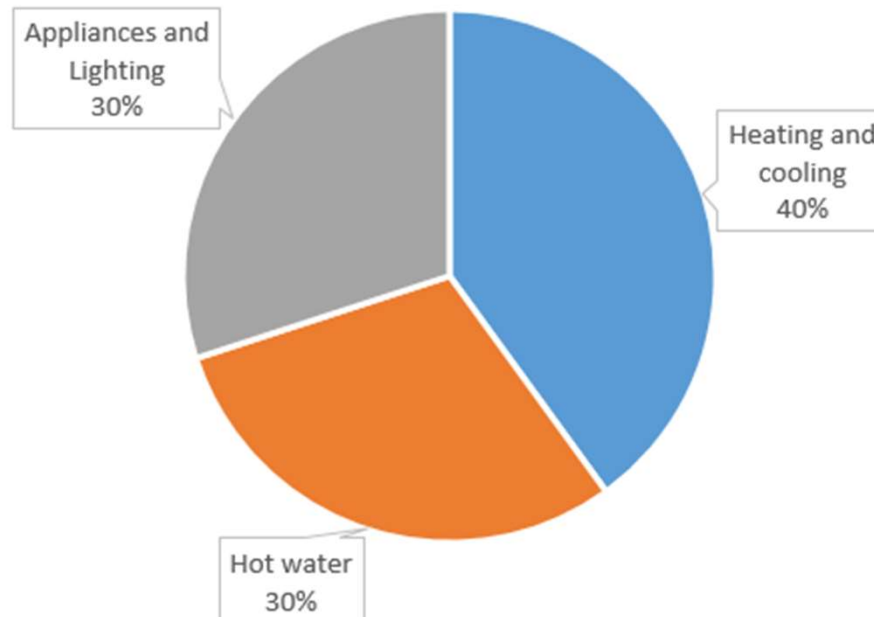
- Four times more efficient than traditional forms of heating.
- 1 unit of energy produces 4 units of heat because it transfers heat rather than create it.
- Rebates available from NSW Climate and Energy Action Department



Reducing the hot water wedge



Typical Household Energy Usage



Heat Pumps & showerheads



Energy Efficiency Assessment

Why get a Scorecard assessment?



What does the Scorecard review?

A Scorecard assessment looks at your home's

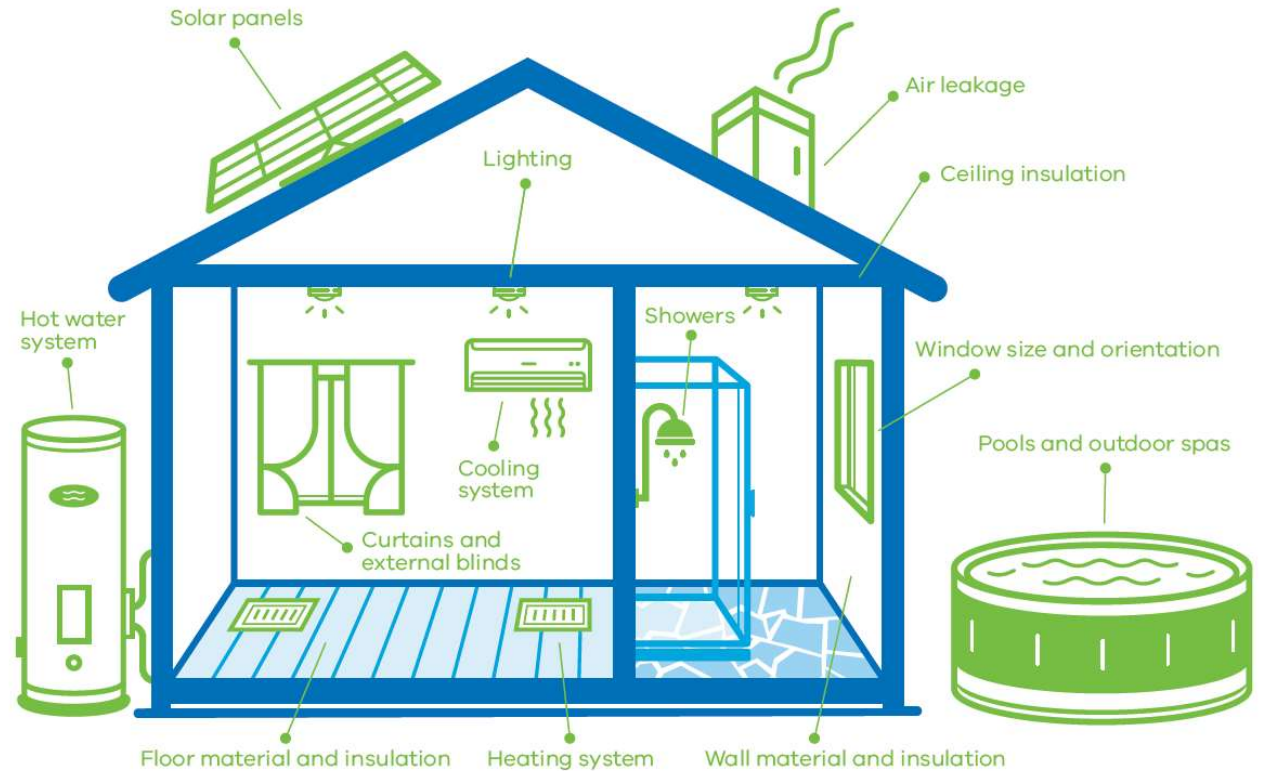
Building shell:

- wall, floor and ceiling materials
- insulation
- windows and eaves
- gaps and cracks

Fixed features:

- heating and cooling systems
- hot water systems
- lighting
- curtains and external blinds
- solar panels
- pools and outdoor spas

Non-fixed appliances like fridges and washing machines are not included.



Health Benefits

- Australians spend 90% of their time indoors
- A thermally comfortable home means less respiratory and cardiovascular disease.
- World Health Organization recommends consistent indoor temperature of 18C – 24C for health.
- Relative humidity between 40 -60%. Most Australian homes would not meet this benchmark.
- Extreme temperatures affect sleep, productivity and mental health.
- Indoor air quality – need to balance air tightness with ventilation.

Practical tips

- Draught proof
- Insulate your roof
- Shade your windows
- Check star ratings
- Scorecard Assessment
- Clean Air conditioner filters
- Check fridge seals
- Monitor indoor and outdoor temperatures so you know when to open up.



For further Information



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Residential
Efficiency
Scorecard
STAR RATING