

How to design an energy-efficient house



Reduce up to 70% of your total household energy needs through simple design principles that reduce lighting, heating and cooling needs. This is known as passive solar design.

7 actions for an energy-efficient house

1



Orientate your house to the north for light and sunshine.

2



As the northern side of your house receives the most sun, the roof overhang should be longer (at least 40 cm to 60 cm) in length. Windows will be shaded in summer when the sun is high, while allowing the sun's rays through the windows in winter when the angle of the sun is low.

3



Window shutters, awnings or screens shade rooms by keeping the hot sun rays out during summer.

7 actions for an energy-efficient house

4



A skylight in the roof allows natural light into the house on sunny days and eliminates the use of artificial lighting. Make sure that the sloping glass of the skylight faces north.

5



Natural materials (stone, timber, thatch and clay), often obtained locally, are most suited to keeping the home cool in summer and warm in winter. Mud bricks are an excellent source of insulation.


6



Floors made out of brick or concrete maintain comfortable temperatures in your house as they are good at absorbing heat during the day and releasing this slowly at night. These floors should not be covered with carpets as a concrete floor absorbs more heat than a floor covered by carpeting.


7 actions for an energy-efficient house

7



Heat loss is ten times faster through glass windows than through insulated walls, so open the curtains during the day (let in the natural light and heat) and close them at night (to keep in the heat).

Further Actions



Insulate your house between roof and ceiling.

→ Read: How to insulate your house

Reference

This article has been adapted from the following print publication:
Sustainable Energy Africa and AMATHEMBA Environmental Management Consulting:
Smart Living Handbook – Making sustainable living a reality in Cape Town homes.
Cape Town, South Africa 2009