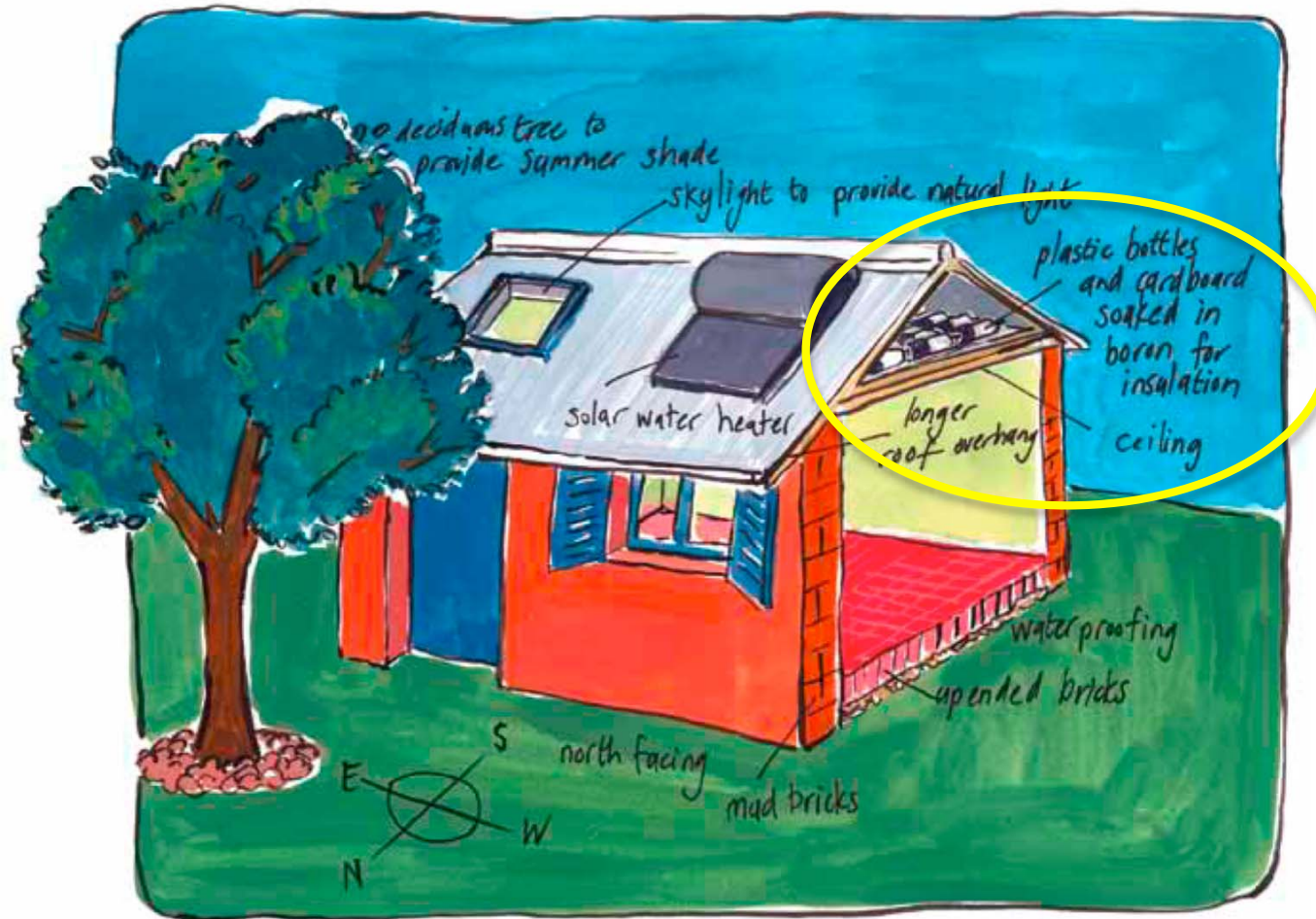


How to insulate your house



Insulation between your roof and ceiling really helps to keep your house warm in winter and cool in summer. It is generally cheap and very easy to do. The benefits of adding insulation lessen as the insulation gets thicker. Some insulation is therefore much better than no insulation at all. Plastering walls is also very cost-effective as it reduces the moisture capacity of the wall.

Materials for insulation

Use non-toxic, renewable or recyclable materials for insulation.

Cardboard	<p>Cardboard is effective but it does retain water and can burn easily. Soaking cardboard in boron and water makes it more fire-resistant and insect-proof. Boron is biodegradable and less toxic compared to other products on the market.</p> <p>How to prepare cardboard for insulation</p> <ol style="list-style-type: none">1. Soak the cardboard in boron and water2. Wait for the cardboard to dry out before using it. Place on a piece of plastic flat on the ground under heavy stones or bricks in order to flatten, before placing the treated cardboard on the inside of walls and ceilings.
Vermiculite	<p>Vermiculite is a light insulator that is safe to use, good for fire resistance and available from local hardware stores.</p>
Other insulating products	<p>Other insulating products from hardware stores or builder's yards are</p> <ul style="list-style-type: none">• gypsum board,• hessian cloth and• strong aluminium foil.
Plastic bottles	<p>You can also tie plastic bottles very close together and place them between the top ceiling and the roof. These are insectproof and trap air, creating good insulation.</p>
Other materials	<ul style="list-style-type: none">• Bitumen from hardware store• Nails, wire• Plastic tape, black refuse bags• Thin planks of wood

Tools for insulation

Hammer, knife, paint brush for painting bitumen

Installing a ceiling in 6 easy steps

1



Check your roof-top for holes that will leak. Paint bitumen (from hardware stores) over these holes. Use plastic bags to block the holes between the top of the walls and the roof.

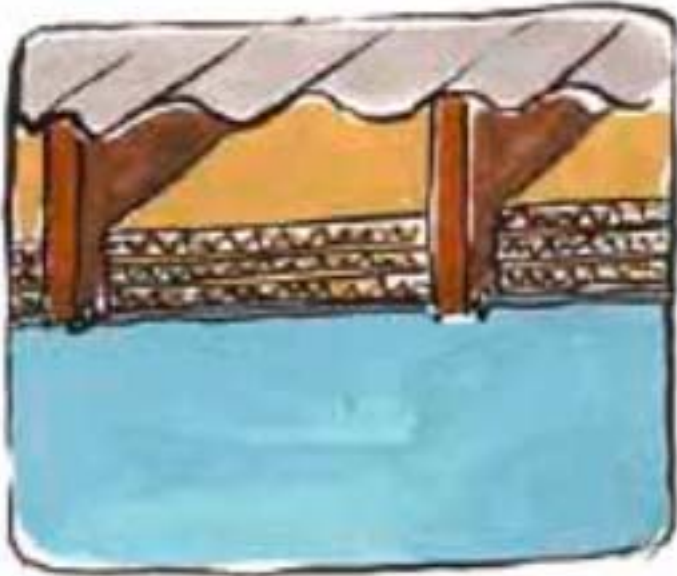
2



Use nails to hang wire from one side of the room to the other – about 30 cm apart. The ceiling will then rest on top of these wires.

Installing a ceiling in 6 easy steps

3



Put two or three sheets of insulating cardboard between the wires and the roof. Remember to leave some space between the cardboard and the roof as this air gap produces the insulating effect.

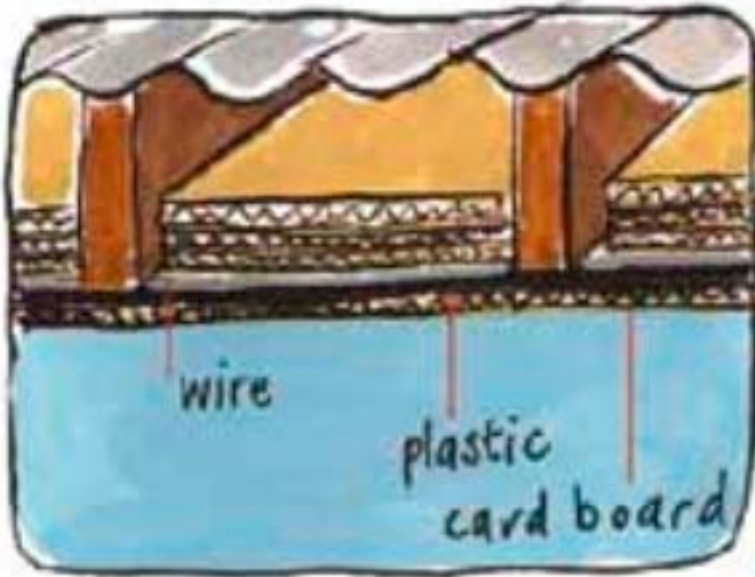
4



Use plastic tape to join pieces of plastic together (use black refuse bags or collect large pieces of plastic and open them out to make large sheets of plastic). Put these plastic sheets beneath the insulating cardboard and the wire. There must be no holes in the plastic.

Installing a ceiling in 6 easy steps

5



Hammer in a single layer of cardboard beneath the plastic. You can paint this cardboard if you like.

6



You can then put up thin planks of wood to stop the ceiling from sagging.

Further insulation



Place empty plastic bottles between ceiling and roof.
The air in the bottles insulates 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