



# the last straw

In the fairytale, the first little pig built a house of straw and came to a sticky end. But, **Andrea Parker** discovers, modern straw bale homes are actually resilient and eco-friendly



leaving your carbon footprint on the planet is a bit like walking across a friend's new carpet with doggy-doo on your shoes – you know you've made an awful mess, but how do you clean it up?

The construction industry is apparently responsible for nearly half of all greenhouse gases – the polluting emissions that lead to global warming. Western-style buildings are estimated to consume more than one-third of all energy used globally and 50% of all other resources, such as water and timber.

A typical modern house, constructed of bricks and concrete, is extremely wasteful to run. They are usually cold in winter and hot in summer, increasing electricity use and the consumption of fossil fuels.

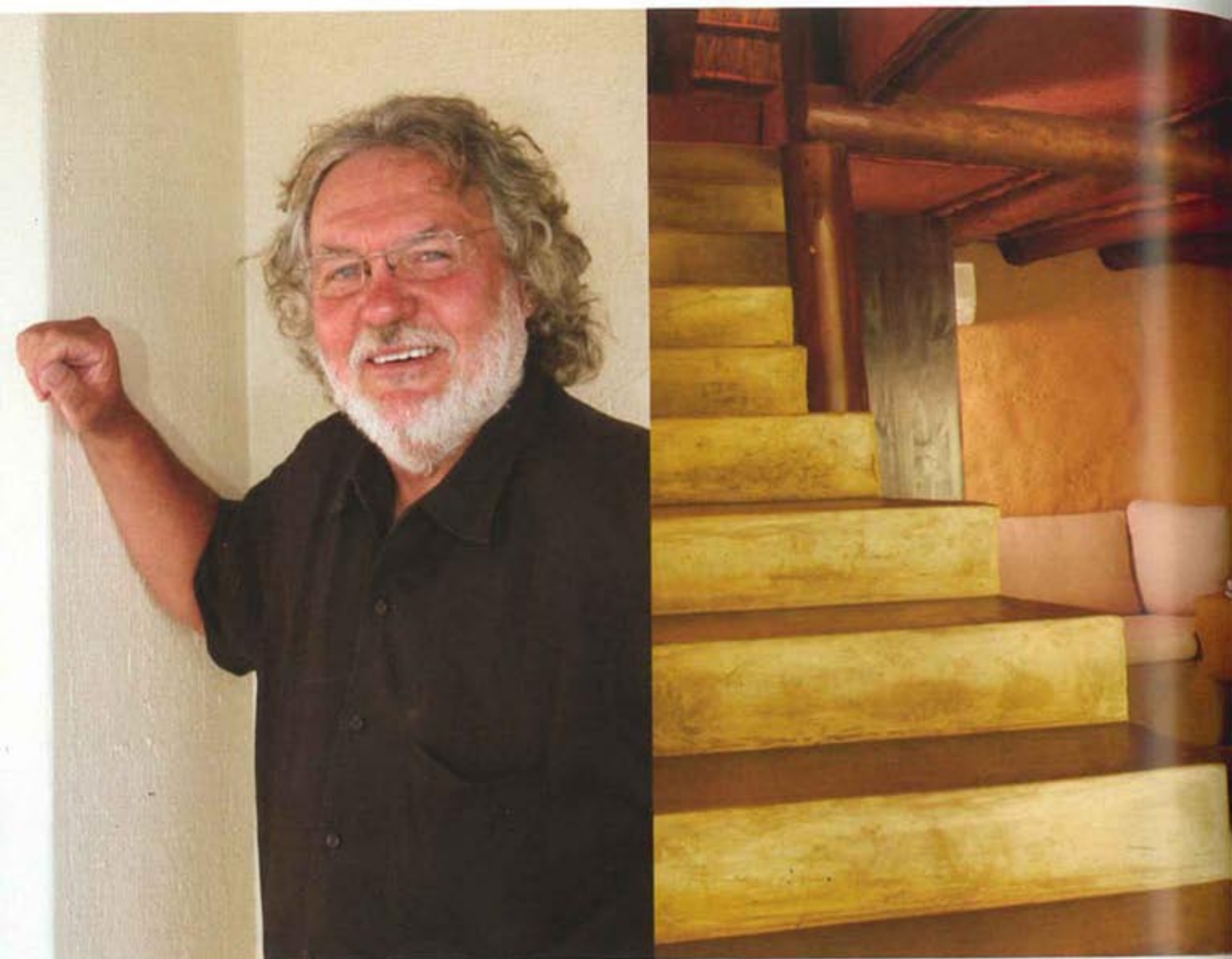
Manufacturing bricks uses huge amounts of energy and causes pollution, particularly hydrogen fluoride, which is released into the air when the clay is heated. And cement production is one of the most energy-intensive industrial manufacturing processes.

In reaction to these gloomy statistics, there is a global revival of natural building methods that are kinder to the planet and leave a lighter footprint.

Straw bale building first became popular in the 19<sup>th</sup> century in the United States. Today the technique is being used by top architects and owner-builders in various

***Above:** In mid-build, showing the basic frame and bale walls, the Gate House at Nieuwoudteville Park in the Western Cape. This award-winning straw bale construction is one of many successful projects designed and built by acclaimed South African architect and straw bale expert, Andy Horn. Horn's website [www.ecodesignarchitects.co.za](http://www.ecodesignarchitects.co.za) offers excellent advice and information on straw bale building in this country*

***Opposite page:** Sailing the construction industry into a greener future. The startlingly beautiful entrance to Didimala Lodge in Gauteng, probably the largest straw bale building in the world*



countries, including South Africa, to create unique, beautiful homes with minimum impact on the environment.

Adriaan Rall lives and works in Hazyview, and intends to build his dream home from straw bales. "I've always been interested in alternative technologies," he explains, "and building with straw bales makes sense."

Bale walls provide 15 times more insulation than a cavity brick wall, they are resistant to fire, cracks and damp, and incredibly resilient — some of the original farmhouses in the US are more than 100 years old.

Straw is a renewable resource and is considered a waste product in the agricultural industry, so it is cheap. The farms around Groblersdal and Marble Hall are among the biggest producers of straw in Mpumalanga.

Adriaan says the hot, humid climate of the lowveld is no obstacle to building with straw. "Providing the bale is properly packed during the building process, humidity is not a problem. Our dry, sunny winters are perfect for building with straw bales."

The lowveld's abundant insects and small mammals are not a hazard. "You can apply the normal precautions for termites during the foundation phase, as with a conventional house," Adriaan explains, "and remember, straw is basically dead

*Above left: Local straw bale enthusiast, Adriaan Rall, believes that cheap and sustainable building technologies will benefit both the environment and the people of Mpumalanga*

*Above right: A simple flight of stairs at Didimala Lodge; the combination of quality plaster work and timber structure creates a contemporary feel to the interior*



## Eco-chic

Didimala Game Lodge, made from 10 000 straw bales, is probably the largest straw bale structure ever built and the first in Africa to be registered with the International Straw Bale Project. The architecture is stylish and fits snugly into the surrounding bushveld.

Owners Colin and Alison Marincowitz say using straw bales was a practical alternative to energy-wasting building materials. Situated in the Mpumalanga Highveld, the lodge is a showcase of eco-friendly building methods and lifestyle.

It uses natural bacterial cleaning materials and replaced 600 incandescent light globes with energy-saving globes. Waste water from septic tanks is pumped into reed beds, which filter out nitrates and pathogens.

The cutting-edge approach is certainly grabbing attention: Didimala was chosen to host the World Summit on Progressive Governance last year and it has been nominated for a 2008 World Luxury Hotel Award.

For more information see [www.didimala.co.za](http://www.didimala.co.za)

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## House Rules

Despite its eco-credibility and financial benefits, straw bale building is the preserve of the wealthy in South Africa. It is not approved by the National Home Builders Registration Council (NHBC), so banks won't grant a mortgage bond on a straw bale building and insurers won't insure it.

Straw bale construction is estimated to be at least 35% cheaper than building a conventional house with bricks and concrete. But ironically, only people with ready cash can afford to do it.

Fred Wagenaar at the NHBC says the council was established mainly to protect the interests of housing consumers, and to regulate the home building industry. It assesses buildings for serviceability, structural integrity, durability and habitability.

Fred says the council is continuously assessing new building methods and innovative technology. It has been approached by builders to approve straw bale structures and is waiting for final submissions to begin the process of assessment.

For more information, see [www.nhbc.org.za](http://www.nhbc.org.za)

material. There are no nutrients in a shaft of straw, so nothing can live off it."

The financial benefits are impressive. On average, building with straw bales is 35% cheaper than building a conventional house with bricks and concrete.

The construction is simple. Using a typical masonry foundation as a base, a framework of timber, steel or concrete is erected and straw bales are used to fill the spaces and create walls. When the straw walls are in place, they are plastered with a breathable non-toxic wall-coating, such as lime and clay-based plasters and paints.

With walls over 500 millimetres thick, wide roof overhangs and properly fitted window sills are an essential element to prevent un-plastered straw being exposed to the elements.

"You can start off small," Adriaan suggests, "by building a garden wall or a boma out of straw bales. It's cheap, environmentally friendly and looks fantastic."

Straw houses are imaginative, ergonomic spaces to live in. There are comfortable, fat-walled family cottages in the Cape; large, curvy lodges in the Mpumalanga highveld; magical Tolkien-style hobbit homes in rural England; and 21<sup>st</sup> century, eco-chic dwellings in California.

If this straw revival makes an impact on the lowveld, the grass could be greener on both sides for everyone.



For more information, see [www.thelaststraw.org](http://www.thelaststraw.org) or [www.strawbalefutures.org.uk](http://www.strawbalefutures.org.uk)