The hemp house features a timber construction housing hempcrete and sandwich panels of hemp fibre insulation and particle board. For more than 8 000 years it was the world's largest agricultural crop, used in a wide variety of applications, but in the last century it was banned owing to its association with its narcotic cousin, marijuana.

Fabricating with fibre

A lookout in Noordhoek platforms the phenomenal versatility of what could very well be the fibre of future building

STORY **NATALIE BORUVKA** PHOTOS **ANGIE LÁZARO**

AT FIRST GLANCE IT'S PERHAPS NOT THE ARCHITECTURE ITSELF but, rather, the green planted roof and glorious views over Long Beach and Kommetjie Valley that strike as the more remarkable features of this house. But, in fact, within the humble character an extraordinary structure masquerades… for this home has been built with hemp, the industrial variety of cannabis. It accounts for almost half the structure and has resulted in a building that is natural, breathable, sustainable and carbon-friendly – laudable environmental virtues that should surely see such homes emerging fast and furious?

Homeowner and project leader Tony Budden sold out to the fibre years ago after receiving a sample of hemp canvas from a friend. Enamoured with its feel and strength, he joined his business partner Duncan Parker in making bags for student markets. This evolved into the company Hemporium is today, with a full range of clothing, accessories, cosmetics and now construction materials. The irony, however, is that in South Africa (as in many other countries) hemp is an illegal crop.

'I came to realise that hemp could provide jobs, houses and food for Africa and that prohibiting its cultivation was a travesty,' says Tony. A house from hemp, it was concluded, would help to illuminate this patently versatile resource.

When architect Erwin van der Weerd of Perfect Places approached Tony in search of hemp building products for his patented modular eco building system, the concept started to shape into a viable reality.

'We evaluated his system and quickly saw the synergies and benefits of using a modular system for building with hemp, which meant we could promote hemp housing on a much deeper level than just trying to sell the materials,' Tony shares enthusiastically. The fact that modular building involves offsite manufacturing processes that greatly reduce site impact and fuel costs further notches in eco-credibility.

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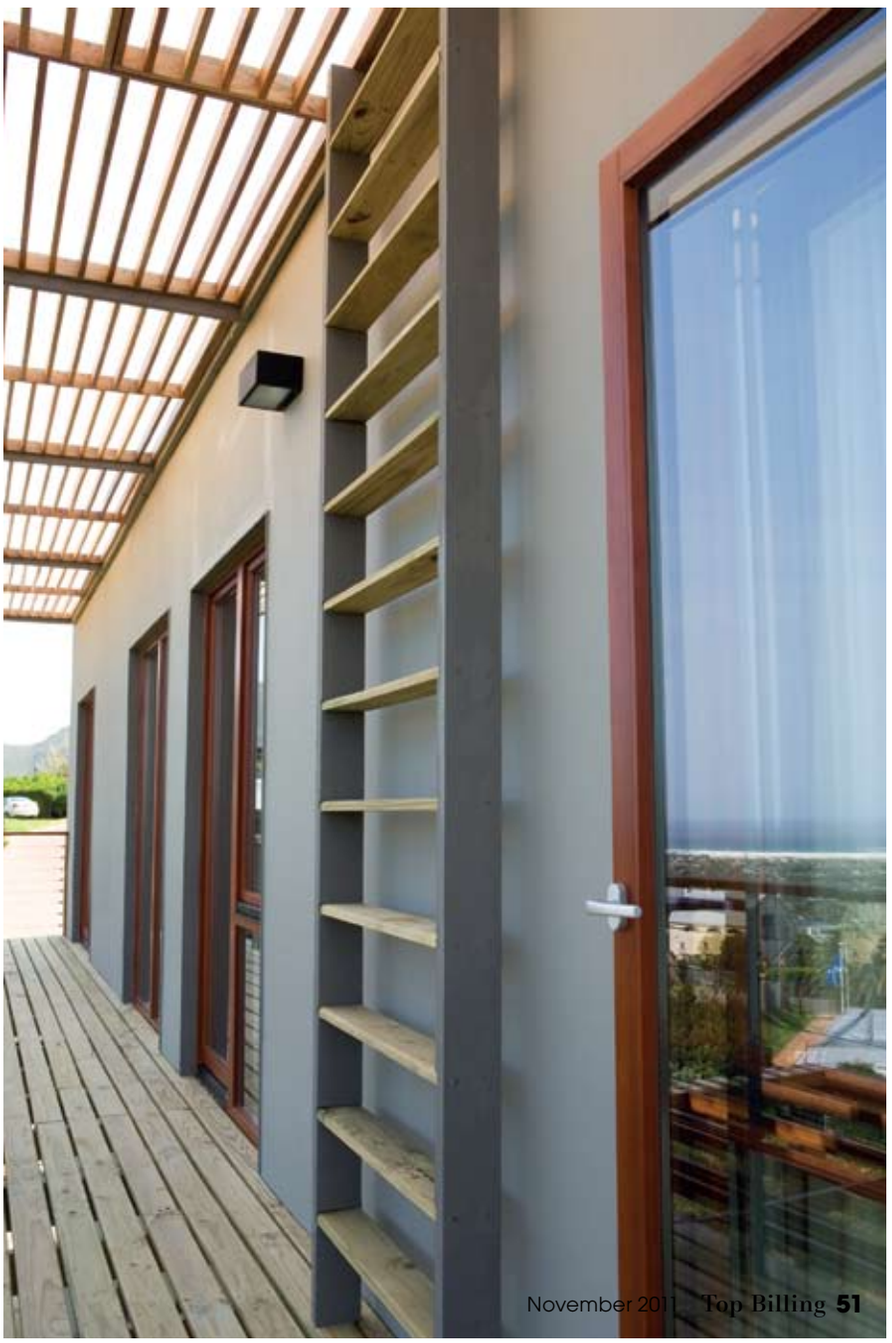
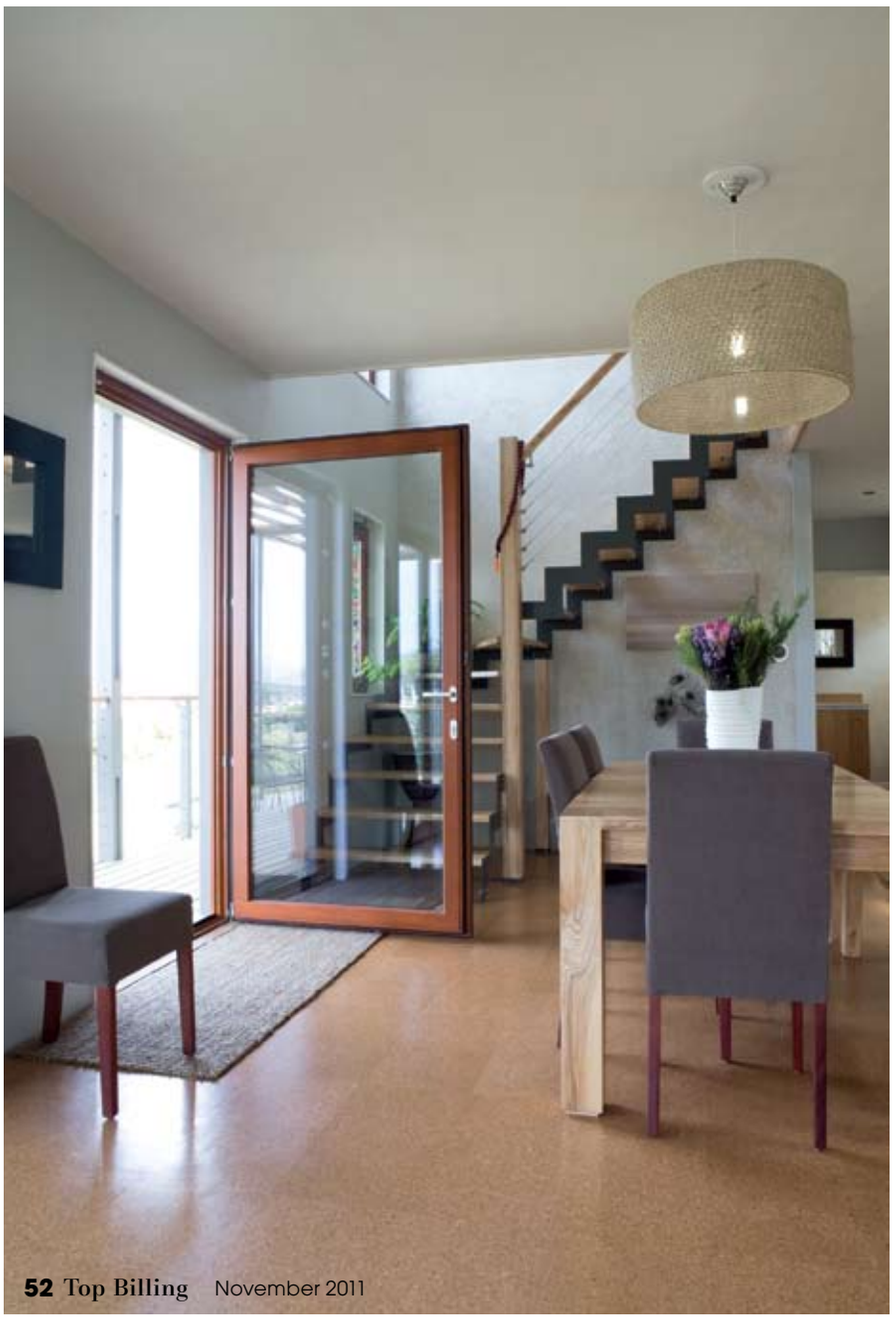
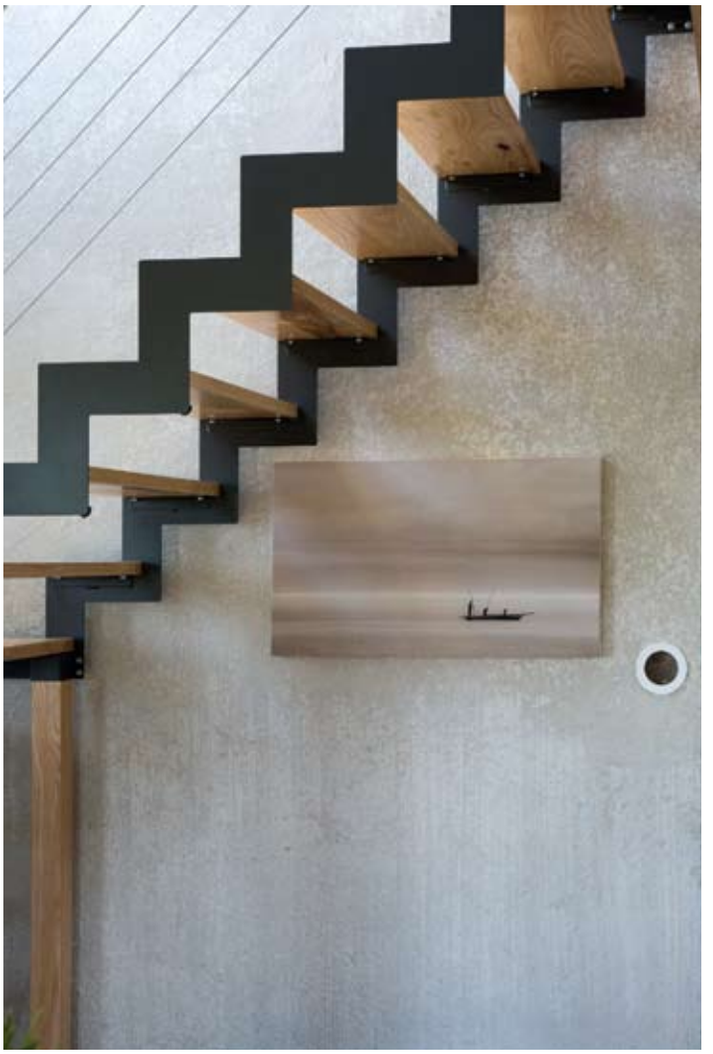


Bricks take the form of hempcrete, a product that merges curiously the sciences of botany and chemistry. Porous and high in cellulose, hemp hurds (stalks), when mixed with a lime-based binder, compete with the lime for water and, in doing so, 'suck' the lime particles through the pores where a bond between the carbon in the hemp and the calcium in the lime creates calcium carbonate – the substance of coral and shells. As it dries and continues to harden over time, the reaction absorbs carbon from the atmosphere, rendering a 'better than zero' building system.

Aside from the superlative natural insulation qualities of the hemp, certain measures were taken to ensure the home would retain warmth when cold and keep cool when hot: a principle characteristic of a green building. The double-glazing windows are gas-filled and, by means of a double-action seal, prevent heat loss. Fitted with motors, they open automatically when the temperature reaches the maximum desired and create a passive air-conditioning through-draft. 'Although options like these are often overlooked initially due to cost,' says Tony, 'they will more than pay for themselves through energy savings over their lifespan.'

The house is a showcase of eco-conscious finishes. Flooring features cork in areas and walls are painted with B-earth paints containing less than five grams of VOCs per litre, which, according to international standards, are classified as zero VOC paints. Reclaimed Oregon pine and recycled Second-Life stone tops from Cannata have been fitted in the kitchen, and in the bathroom the vanities are bamboo. But hemp remains the hero. It has been used as underfloor insulation and as a particle board for the cupboards and wall cladding. The curtains, carpets, light fittings, bed linen and upholstery all comprise the fibre in some proportion or another and even the oil that has been used as a protective coating for the timber furniture has its origins in it.





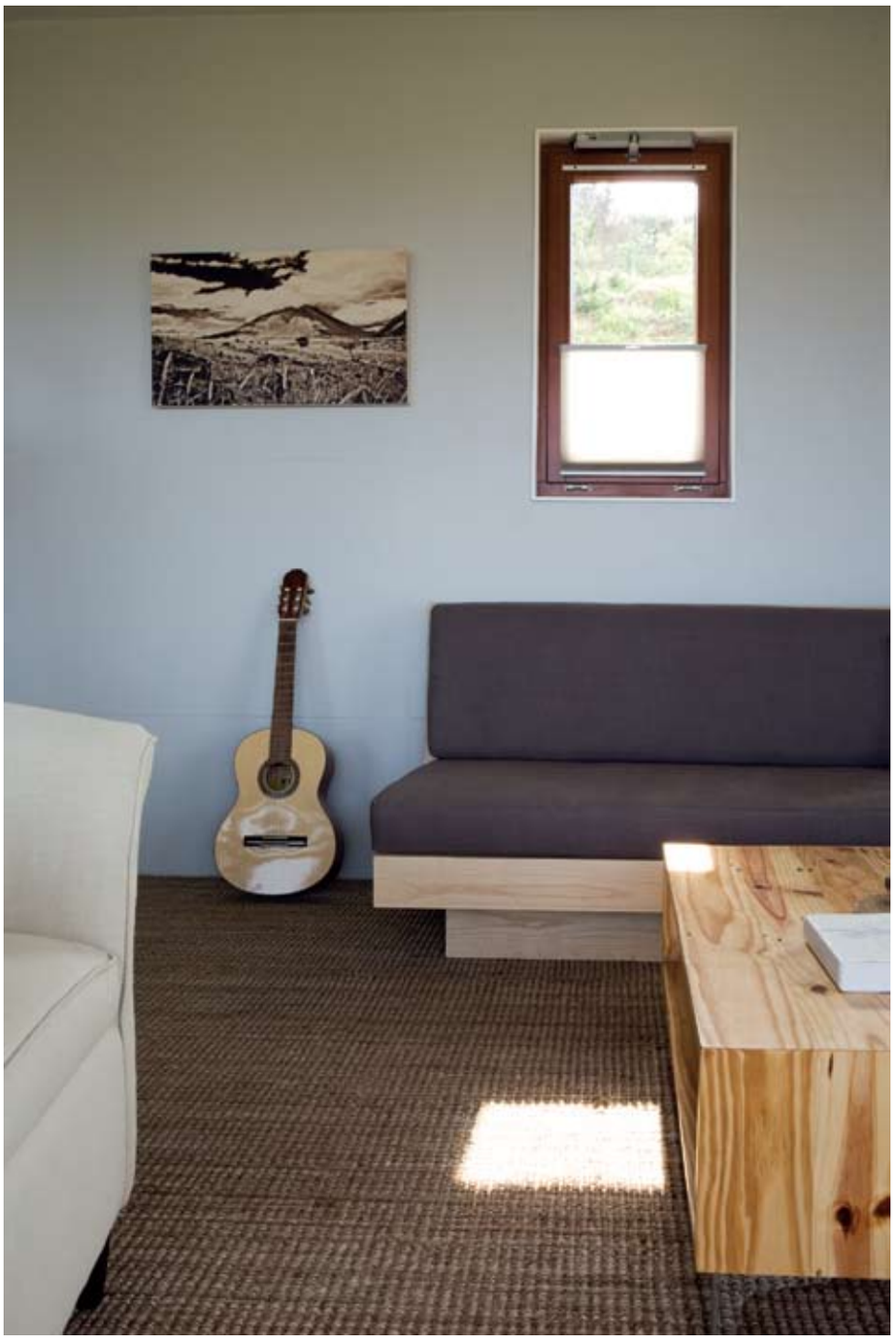
So what of the future? It appears promising. The government has recently sanctioned commercial trials for industrial hemp which means that locally grown hemp should soon be available for construction materials.

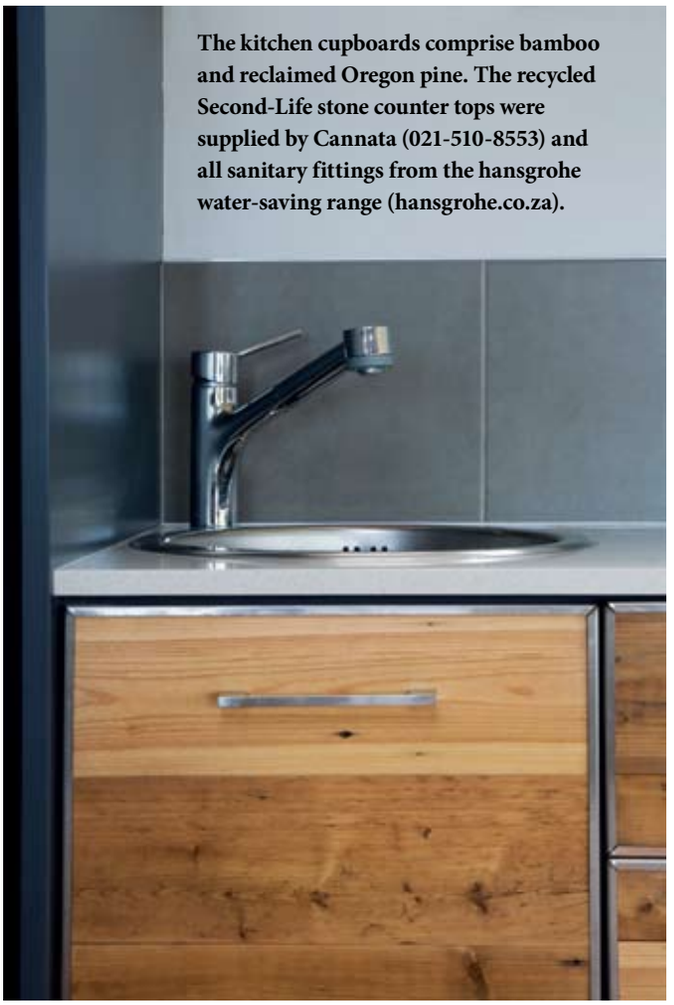
'We're proud to be part of an initiative that moves back towards a healthy, green planet, but,' Tony drives the point home, 'if South Africa is to avoid playing catch-up in its environmental standing, then we need to ensure that all new houses from now on are built with energy efficiency and renewable sources at the forefront.' TB

Hemporium 021-762-4380, hemporium.com
Perfect Places 0861-00-20-25, perfect-places.co.za

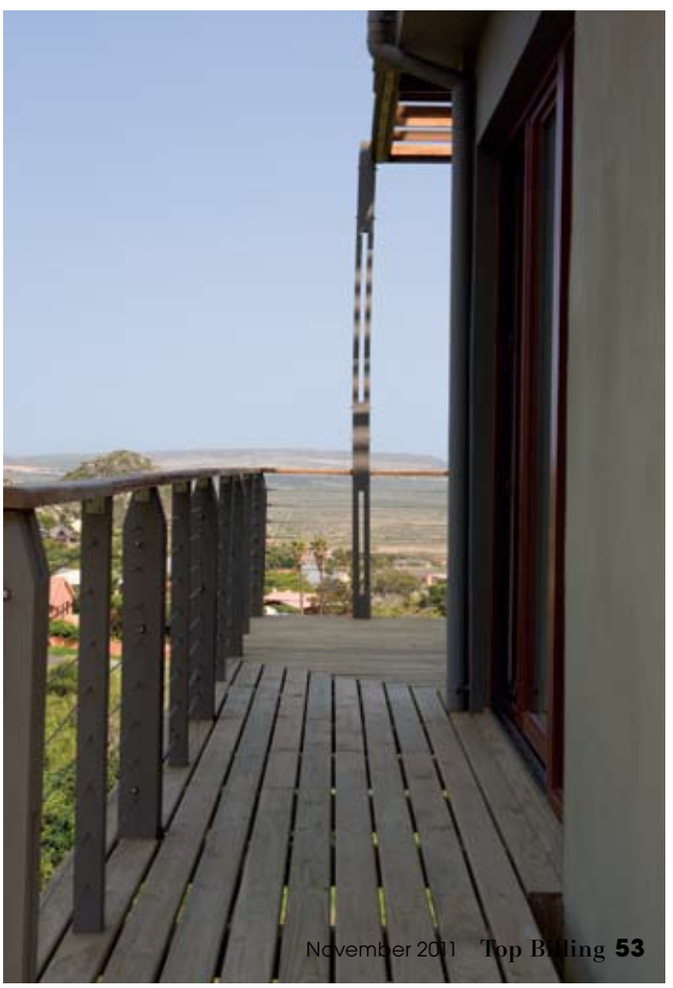
ABOVE Feature walls highlight the textural quality of the hempcrete screed.

LEFT AND RIGHT Inspired by the earth tones of the house's surrounds, the interior is an energy-efficient environment featuring double-glazing windows by Massclusivity (076-290-7120) that operate on motors to respond automatically to temperature change, Green Wind Power & Automation (072-479-4215). The energy-saving LEDs were supplied by Earth Power (082-368-9608).





The kitchen cupboards comprise bamboo and reclaimed Oregon pine. The recycled Second-Life stone counter tops were supplied by Cannata (021-510-8553) and all sanitary fittings from the hansgrohe water-saving range (hansgrohe.co.za).



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