

the House that Hemp Built




Given that our environment is valuable and that fixing it, or keeping it healthy if it isn't already degraded, is a one-time offer that we cannot afford to get wrong, it is imperative that we make eco-friendly building as accessible as possible – without sacrificing our modern lifestyle options. Carly Warren of Perfect Places and Tony Budden of Hemporium take a look at one emergent building option – hemp.

When the builders of the 'hemp house' in Noordhoek, Cape Town, considered their options to construct an eco-friendly building that was accessible to the broader public, they were forced to look at 'flexible systems that would adapt to the changing markets and designs, owners trends and needs,' says Perfect Places architect Erwin van der Weerd, who adds, 'We can't force people to go eco-friendly; what we can do is make the "green option" as easy as possible.'

In the case of the 'hemp house', a newly-constructed home which overlooks the sweeping expanse of Noordhoek's Longbeach and much of the Noordhoek valley, the brief for the interior design was to

create a healthy, warm, modern, earth-inspired and energy-efficient environment that showcases hemp and other environmentally-friendly products. The look and feel were inspired by the surroundings of the plot: the warm, earthy tones and textures of the mountain combined with the simplicity and crispness of the sea. The hemp materials used in the interior include 'hempcrete' for walls, hemp particle board for cupboards and wall cladding, hemp carpet for flooring, hemp fabric for curtains, upholstery, bed linen and lighting, hemp rope for lighting, hemp insulation under the floor and hemp oil as a protective coat for timber furniture.

The efficient insulation of the hemp was complimented by double-glazing windows from 



Eco-building made easy

The how-to of eco-building is not as complicated as it might sound. Here are some basic facts.

Erwin van der Weerd, who has been involved with eco-friendly building in Europe and SA for the last 25 years, says that when assessing a new project, begins with the basics like wind direction, sun rise and sun set in both winter and summer, the slope of the plot, the soil and the kind of foundation that is needed.

‘We look at your life style and see what would work for you. An eco-friendly house or building starts with the design, taking into consideration its position towards the sun and wind, looking at the micro-climate of the plot, shadow, mountains, buildings or trees around your house. These are the basics that ensure when we build, we use nature to heat and cool the house. It is essential to design a house or building to fit in with the environment not just aesthetically but also ergonomically.’

Not least among considerations is the choice of basic materials, which could range from sandbags, strawbales, cob (a surprisingly durable straw, clay and sand mix) or a combinations of these. The next step, explains Erwin, is to formulate a modular design which incorporated most of the benefits of the chosen materials and which allows for an ease of building – each of the mentioned systems cuts the use of machinery by more than 50% and allows homes to be built in as little as 3-4 months.

‘We have to make sure that the impact on nature is reduced. We design houses and spaces with a natural air flow to reduce heat absorption, so the need for air conditioning is reduced in summer.’

Under-floor or wall heating technology is used to reduce the need for firewood and coal, or other heating methods, is lessened in winter. Properly installed insulation also reduces the temperature extremes experienced by most South African home-owners. The option here is solar-powered heating and cooling systems, some of which have become quite sophisticated. There are also other options available such as ground source heat pumps and air source heat pumps, which are expensive to install but very inexpensive to run. There is even a window that opens and closes automatically driven by a thermostat, which means, that your home cools itself using airflow instead of air conditioning.

You can now swim in a fresh water, solar heated pool which is built to use the minimum possible amount of concrete. (The biggest pollutant used in building today) The amount of CO² produced to make concrete means that it takes hundreds of years to balance the carbon footprint left by building a traditional home. And while we wait for science to catch up with its eco-friendly concrete, (which apparently absorbs carbon dioxide for a few months and is being developed in Europe.) we should consider the carbon footprint of our home. **SG**

➡ Massclusivity. The windows are gas-filled, and prevent heat from leaking out of the closed windows with their double action seal. Although options like this are often over-looked initially due to cost, they will pay for themselves through energy savings over their lifespan.

The windows are complimented by an automated opening system attached to thermostats that help regulate internal temperature by opening on the cooler/hotter side of the house depending on the time of year. This system was supplied by Green Wind Power and Automation.


The kitchen was designed using a combination of recycled Second-Life stone tops from Cannata and reclaimed Oregon pine cabinet door fronts, to juxtapose eco-friendly and chic. In the bathrooms, recycled Second-Life stone tops were used on the bamboo vanities, bamboo being chosen for its sustainability, hardness, imperviousness to water and aesthetic appeal. All taps and shower heads are from the beautiful Hans grohe water-saving range.

Cork flooring was used on the ground floor mainly because of its sustainability (only the bark is harvested from the tree, causing no damage to the tree which re-grows new bark). The product is also extremely durable, soft, anti-allergenic and has excellent thermal and sound insulation properties. Hemp carpet from Coirtex was used in the bedrooms and lounge.

All the internal and external paint was supplied by B-earth, as they are durable, water resistant and have no toxic metal releases, as well as low releases of volatile organic compounds (VOCs) during application and thereafter. The VOC contents of the products in the system are less than 5gm/ℓ, which, according to international standards, are classified as 0 VOC paints.

All lighting is energy-saving LEDs supplied by Earthpower, a feature being a strip that highlights the textured internal Hempcrete wall. The appliances such as refrigerator, washing machine, dishwasher etc are also water – and energy-saving ➡

Fast Hemp Facts

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- ➡ The 'hemp house' is a project to showcase industrial hemp and its potential as an eco-construction material. The house, recently completed in Noordhoek, Cape Town, uses hempcrete, hemp insulation, and hemp particle board. The hemp aspect of the building, which accounts for up to 50% of the walls, was grown in 4-5 months without the need for agro-chemicals, and results in a breathable, natural, sustainable and carbon-friendly building. The next hemp house project will be completed within the next few months in Greyton.
 - ➡ Industrial Hemp refers to non-narcotic Cannabis cultivars that are used for a wide range of end products. Hemp grows up to 4m tall in 4-5 months and is organic by nature. It can be used as a sustainable resource for paper, fuel, textiles, construction materials, bio-composites, nutrition, cosmetics and more. Currently it is strictly controlled due to its illicit cousin, marijuana/dagga, but over 40 countries are now growing it as part of a move back to a green sustainable economy.
 - ➡ Hemporium has been actively promoting the use of hemp in South Africa since 1996 by manufacturing clothing, accessories and body-care products out of imported hemp raw materials. The 'hemp house' has been built by Duncan Parker and Tony Budden, business partners in Hemporium, as a continuation of their aim of showcasing all that hemp has to offer and urging legislation change to enable hemp to provide jobs, houses and nutrition in South Africa. Recently the government has given out permits to grow 700Ha of hemp in SA. This means locally-grown hemp will soon be available for insulation. Plans are in motion to set up a hemp fair trade structure.
 - ➡ Hemp construction focuses on using the hemp stalks, which produces long strong hollow fibres that can be used to make insulation mats, while the woody part (hurds) can be pressed into tree-free particle boards for use in cabinets and panelling, as well as hempcrete when mixed with a lime-based binder. The aim of using hemp in construction is to move from an extractive method relying on mined and synthetic materials to a renewable method.
 - ➡ Modular building means building in phases or in modules. Most of the materials are manufactured offsite and transported to the build site. This method uses less fuel to build and build times of 2-4 months reduce costs. The system is designed to be made from sustainable resources. If there is space, it is easy to add on later reducing the need to build again. The building can be as 'green' as the client desires, even to being completely impact-neutral. Tree planting is also part of any carbon off-setting.
 - ➡ Energy efficiency is a key advantage of modular eco-friendly building – but one which is not visible. A 'green' building can look like every other design but with big advantages as it is more comfortable to live in, cool in summer, warm in winter, with savings on electrical costs and water intake and, related to that, your waste is reduced.

compliant. Samsung supplied their state-of-the-art energy saving 3D LED TV and their new EcoBubble washing machine.

Perfect Places worked hand-in-hand with Hemporium to showcase the diversity of hemp as a building and décor product, our intention was to inspire the future of design through sustainable, healthy products and materials that are accessible to all.

We are grateful for all the input and support from all our partners, and trust that they will see their efforts rewarded as the eco-aware market grows. We are trying to create a conscious consumer movement where people consider who they are supporting before purchasing, and use their spending energy wisely in supporting those who are making efforts to produce products that minimise their impacts on the planet. **SG**

Tony Budden is now a spokesman for the HempNow initiative for South Africa to join the other 28 countries worldwide that have legalised the use of hemp for industrial purposes. For more information and to sign the petition visit www.hempnow.co.za.



RESOURCES

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Massclusivity

Double Glazing Windows
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Hansgrohe

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