

## **PRESS RELEASE**

### **Wood: Mother Nature's building material**

*28 November 2012, Johannesburg:* There are very few building materials that boast the environmental benefits of wood – compared to alternative building materials, the manufacturing of wooden building products produces less air and water pollution, requires less energy across their lifecycle, and generate less CO2 emissions.

Says Charl Jacobz from Swartland Wooden Windows and Doors: “Wood is a fantastically green building material – it is a sustainable material that boasts low embodied energy and low carbon impact, it is durable and long-lasting, with great insulating qualities, and it is aesthetically beautiful to boot.”

He says that the concept of green building has become increasingly mainstream over the last few years as more and more consumer become aware of the benefits of choosing eco-friendly building options: “Green building pivots on choosing materials that reduce a building’s energy consumption and decreases the negative impact it makes on the environment. Apart from the long-term financial rewards inherent in making environmentally-friendly options – going green is also a good way of doing your bit for the environment.” He notes that using wood wherever you can in your home is a good place to start due to the following reasons:

#### **Embodied energy**

“Embodied energy refers to the total amount of energy required to extract, harvest, process, manufacture, transport, construct and maintain the materials used in building applications,” explains Charl. He says that wood has a comparatively low embodied energy: “Wood requires a minimal amount of energy-based processing when compared to other building materials, such as concrete, plastic or steel. In fact, solid-sawn wood products, such as Swartland’s range of wooden windows and doors for example, boast some of the lowest levels of embodied energy in the industry.”

Charl explains that the sun provides the energy to grow the trees from which the wood is harvested, while fossil fuels are required to produce other non-organic building materials such as steel, plastic and concrete. Wood is also comparatively lighter than other materials, so the transportation energy is significantly less. When extracted from the environment, wood is in a ready-to-use state, and requires very little processing relative to other materials.

The most energy-consumptive process in lumbar manufacture is the kiln drying process. To ensure that the wood that is used has the ideal moisture content of 8%, which is ideally suited for the South African climate, Swartland kiln dries all of its own timber in its own kilns. Although this process does consume quite a bit of energy, it is an essential part of the manufacturing process, as it guarantees the longevity and durability of the final timber product. Says Charl: “To reduce

the levels of embodied energy however, Swartland fires its kilns with waste wood off-cuts generated in the mills. In fact, the lifecycle of the wood is fully optimised to ensure that no wood is wasted in the manufacturing process – the wood shavings are used as gardening mulch, and the larger wood chips are used by chicken farmers for their chicken’s bedding.”

Charl notes that not all wood is equal – solid wood is far more environmentally friendly than engineered wood: “Wood products that need more processing, such as plywood, MDF board, chipboard, and so on, require more energy to produce than solid timber. Having said that however, they still require substantially less energy to produce than their non-wood components.”

### **Carbon impact**

Much of the discussions around global warming pivot on how to slow the growth in carbon emissions. Carbon has an enormously negative impact on ecosystem sustainability, and forests play an incredibly important role in the earth’s carbon cycle, explains Charl: “Through the process of photosynthesis, the biomass contained in our forests and other green vegetation remove carbon from the atmosphere – through this process, carbon dioxide and water is converted into sugars that the tree uses to grow, and this creates the wonderful by-product of fresh oxygen, which gets released into the atmosphere.”

He says that using wood in your home can actually help offset carbon emissions: “Studies have shown that a single tree can absorb around 5kg of CO<sub>2</sub> each year, and at harvest, much of the carbon remains stored in the wood, keeping it out of the atmosphere. Even after decades of use, the wooden products can be recycled, reclaimed and reused, which means that they can continue to store the carbon indefinitely. The carbon will only be released when the wood finally deteriorates or if it gets burned or mulched.”

Wood can actually be carbon negative explains Charl: “Since wood has such a low level of embodied energy compared to other building products, and since it is one-half carbon by weight, wood products can actually have a carbon negative rating.”

### **Sustainability**

Unlike metal and fossil-fuel-based products, such as plastic for example, wood is a renewable material. With proper management, forests can produce a flow of wood indefinitely. The emphasis is on proper management however, as the sustainability of this resource requires forestry and harvesting practices that ensure the long-term health of the forest environment. This is why it is essential that when choosing wooden products, you ask for wood that is from a sustainable source.

“Swartland for example, only sources wood from strictly monitored sources and gives preference to responsible loggers. The company has even placed its own representative in Gabon, where a lot of its wood is sourced from, for on-site

monitoring of the harvesting process. By doing this, Swartland is able to guarantee that all the wood used for its products is sourced in a sustainable and responsible manner,” explains Charl.

He notes that Swartland uses a variety of hardwoods and softwoods: “The softwood we use is SA Pine, which is exclusively harvested under strict control of the Forestry Stewardship Council (FSC). Okoumé is Swartland’s choice of hardwood – it is from Gabon in West Africa, and obtained solely from sources involved with responsible logging programmes. Meranti is another popular hardwood that comes from rainforests in Malaysia and Indonesia, however, due to uncontrolled harvesting of these rainforests, Swartland does not use Meranti.”

## **Insulation**

The heating and cooling of a home can account up to 50% of all its utility costs. In this regard, wood is a great choice as it is an excellent insulator, says Charl: “Wood’s cellular structure contains air pockets that limit its ability to conduct heat and helps minimise the energy needed for heating and cooling – in fact, wood is 400 times less heat conductive than steel, and 8,5 times less conductive than concrete. This is what makes it such a great building material, as it is so much easier to insulate than other materials.”

Swartland’s range of wooden windows and doors set the industry benchmark with regards to being exceptionally efficient insulators, says Charl: “Apart from the fact that wood is a great insulator, Swartland's windows and doors are manufactured with care to ensure that they offer maximum insulation. Independent tests conducted on Swartland’s wooden windows for example, by the South African Fenestration and Insulating Energy Rating Association (SAFIERA) have shown that they have the lowest U-rating of all tested windows in South Africa. Tests completed on Swartland’s double-glazed wooden windows achieved a U-value of 1.86 that was much lower than the SANS204 default U-value for timber windows.”

## **Longevity**

Another benefit of wood as a building material is the fact that, if properly maintained, it is exceptionally durable and long lasting. According to Greenpeace International, developments in timber window design and finishing products mean that modern, high performance timber windows need minimal maintenance and potentially have a significantly longer lifespan than PVC windows. It notes that in general, wood can last for over centuries if inspected and adequately maintained, while their PVC counterparts need to be entirely replaced after 20 to 25 years.

Charl concludes: “So whether you are renovating or undertaking a new-build, choosing good quality solid wooden windows and doors for your home is a very good choice – good for your pocket due to their great insulating qualities and the fact that they can last for decades, good for the environment as wood boasts a low carbon impact, low embodied energy, and it is a sustainable material, and

what's more, wooden windows and doors can give any home a beautiful and organic aesthetic that is only inherent in solid wood – Mother Nature's green building material.”

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### **The Forestry Stewardship Council (FSC)**

The FSC is an independent, non-governmental organisation established to promote responsible management of the world's forests and is probably the most well-known forest certification program worldwide. More than 280-million acres of forest worldwide are certified to FSC standards and are distributed over 79 countries. The FSC program includes two types of certifications. The Forest Management Certification applies FSC standards of responsible forestry to management of the forestland. A Chain-of-Custody (COC) certification ensures that forest products that carry the FSC label can be tracked back to the certified forest from which they came. More than 9 000 COC certifications are in use by FSC members. The FSC has certified 18 certification bodies around the world.

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