

Introduction:

Raw Studios cc. prides itself on being an environmentally responsible company and this is evident in our approach to design, raw materials procurement and manufacturing processes. However, since the Green Building Council South African does not test, review or certify products or materials, we have decided to compile this fact sheet to help prospective users to ascertain for themselves our commitment to sustainable business practice.

Raw Material.

The material of choice, for 99% of our products, is Solid Birch Plywood that we import directly from Koskisen Oy in Finland. Our reasons for using Finnish Birch Plywood and not a local plywood are as follows:

1. **The base material:** Finnish Birch (*Betula pendula*, hardwood) is the most important raw material in the plywood process. Trees grow slowly in Finland's climate and thus the wood produced is close-grained, of consistent high quality and has excellent strength, peeling and gluing properties. Local Pine plywood is much softer than birch, substantially weaker and far less dimensionally stable, resulting in an inferior product. Much of the South African Pine plywood is still treated with CCA, which is a known carcinogen and banned in most western countries.
2. **Glue:** The vast majority of Finnish plywood is of cross-banded construction, bonded with Phenol\* (exterior grade WBP) resin adhesive. Formaldehyde emission from phenol formaldehyde resin adhesive bonded plywood is very low. Measured values are below even the tightest national requirements. When determined according to EN 7172, the formaldehyde emission from unsurfaced exterior birch plywood is 0.4 mg HCHO/(m<sup>2</sup>·h), significantly lower than the requirements of class E1 (the best class). Furthermore, Finnish plywood meets requirements of the formaldehyde emission limits of EN 1084, release class A (the best class). Thus, the release of VOCs ( Volatile Organic Compounds) within buildings is very low.
3. **Forests and the environment:** Thanks to good forestry practices and sustainable forest management, the annual growth of Finnish forests exceeds the amount harvested. Forest ownership is divided over a broad spectrum of the population, every fifth Finnish family owning some forest. Another cultural aim, in addition to maintaining the growing stock, is to preserve a natural habitat for the diverse flora and fauna in their forests. As a result, the forest's ability to absorb carbon dioxide, helping to reduce global warming, is improving all the time. Locally most forests are owned by corporations and the state and although sustainable forest management is maintained in theory, in reality these practices are lacking.
4. **Forests and Forest product Certification:** Certification through compliance with the FFCS(The Finnish Forest Certification System) indicates impartially

**Greenstar**  
**keywords**

**Sustainable Timber.**

**Formaldehyde Minimisation**

**Volatile Organic Compounds**

**Certified Timber.**

\* Certificates and spec sheets are available on request.

and reliably that the forests and forest ecosystems are being used and managed sustainably. In addition to a FFCC certificate, Koskisen products are also certified under the PEFC\*(The Pan-European Forest Certification) label. PEFC standards are based on the Pan-European criteria and indicators set for sustainable forest management and Chain of Custody (CoC) certification. In South Africa it is possible to have forest products classified under the FSC (Forest Stewardship Commission), but in reality a very small percentage of the timber on offer is certified.

- 5. A word on transport:** We are acutely aware of the increased carbon footprint caused by transporting our raw material all the way from Finland and realize that this is far from ideal. We believe that this situation is negated to a large extent by the fact that it enables us to produce a more durable, healthier and generally higher quality product which will not have to be replaced after eg four years of service, but could potentially last four times longer and consume less energy ultimately than the inferior local (50km +) alternative. If we could source this level of quality locally we would be first in line to do so.

### Raw Processes.

From initial design to finished product, we constantly endeavor to produce products as efficiently and durably as possible and to create as little as possible waste. In order to achieve this we employ the following processes:

- 1. Innovation in design.** Our products consist mainly of components that are cut from full sheets of Birch plywood on a CNC nesting machine. This process is very efficient as we are able to “nest” the components very closely together, thus avoiding large amounts of waste on this precious resource. Average wastage in the production process is around 8%. Products are actively designed to keep wastage down to a minimum. Focusing on modular systems (as opposed to simply objects) that can be changed and reconfigured as requirements and usage change affords our product a longer useful lifespan and keeps them out of landfills for much longer. Also, components can be easily replaced if damage occurs as most products, by far, are designed flat-pack for disassembly and easy transport. Recycling also become much easier as a result of the ease of disassembly.
- 2. Innovation in Manufacturing.** As mentioned, the CNC cutting process is an extremely efficient way of producing precise components and Raw Studios has been employing this process for the last eight years, long before our competitors caught on. Another technology that we have been using for a number of years now is water-based varnishes\* in our environmentally-friendly finishing processes. The release of VOCs (Volatile Organic Compounds) originating from these varnishes within buildings are very low.

#### Keywords

Chain of Custody (CoC)

Local Sourcing

To encourage and recognize pioneering initiatives in sustainable design, process or advocacy.

Volatile Organic Compounds

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**Conclusion:**

We believe that the measures we have taken to reduce our environmental footprint have gone to some lengths to lessen the burden our industry exerts on the planet. Admittedly, there is much more that can be done and we will continue to identify ways of improving our contribution to the fight against global warming.

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