Choose FSC® certified wood and paper

Discover the benefits for your business
From a good idea to a global market tool

The Forest Stewardship Council® (FSC®) was formed in 1993, and the issue of the first certificates for sustainable forest management followed shortly afterwards. This groundbreaking act had a profound impact not only on the practice of commercial forestry but also on the expectations of consumers and the companies that produce and distribute forest products. Being able to buy products with an FSC label gave consumers the chance to make a positive difference around the world, allowing them to feel the connection between the product they had bought and the forest floor and the people who live and work there.

Since 1993, FSC has grown into the forest certification scheme with the most certificate holders worldwide. There are now more than 27,000 Forest Management and Chain of Custody certificate holders, and almost 180,000 million ha of forest is FSC certified worldwide. In twenty years, an ethical idea has been transformed into a globally-recognized, trusted brand in the market.

But despite this huge success, the need for certification has never been stronger. Climate change is probably the biggest threat facing life on the planet, and its impacts are being felt first and most strongly by the poorest, traditional communities. Sustainable forestry is one of the most effective means to mitigate climate change. Trees absorb carbon dioxide (CO₂) from the atmosphere as they grow. When harvested, carbon is stored in every piece of furniture, timber-framed house and piece of paper. And FSC certification ensures responsible management of forests with new trees growing, absorbing more carbon – a prerequisite to upholding the cycle. At the same time, FSC certification requires the maintenance or enhancement of the biodiversity of forests and demands that communities depending on these forests benefit from the forestry operations.
Wood - when purchased from a sustainable source like FSC - is a great raw material. It is environmentally friendly and renewable. And there are many more reasons to prefer certified wood or paper.

This report has been designed to support different players in the market to explain the benefits of certified wood, not only from an environmental and social perspective, but also from the perspective of companies, in particular industries.
Wood is a wonderful building material – beautiful to look at, easy to work with, renewable, and recyclable, carbon-efficient, low-energy and high-performance.

With the embodied energy needed for constructing buildings accounting for 5 to 10 percent of global carbon emissions and the energy needed for heating, lighting, cooling and ventilating buildings responsible for around 40 percent of global carbon emissions, the construction industry and policymakers have recognized that more environmentally-efficient materials and methods need to be adopted. Wood compares favorably to other common construction materials across many environmental indicators.

FSC certified timber should be a strong pillar for a more sustainable building industry. Not only does FSC certification guarantee the use of environmentally appropriate forest management practices in the production of wood for construction, but it is also increasingly useful for companies participating in the green building industry, as well as helping ensure compliance with changing timber regulations.

Concrete and steel dominate the global market in construction materials. Yet, producing steel is 24 times as energy-intensive as producing wood, while concrete can emit 0.14 tons of CO₂ per cubic meter produced. By contrast, timber absorbs approximately 0.9 tons of CO₂ per cubic meter, storing the carbon for the duration of its lifespan. As this carbon store of harvested timber remains stable while more trees are grown to replace those that have been harvested, a net carbon reduction is achieved.

The net CO₂ emissions of different building materials vary greatly during their life cycle. Whereas wood-based construction materials such as timber, plywood, particle boards and hardboards absorb carbon, mineral-based construction materials like gypsum board, limestone and red bricks and metal-based construction materials such as steel plates and rolls, steel I-beams and aluminum façade elements cause significant carbon emissions during their life cycle. And because wood can often be recycled, there is good potential for extending the duration of its carbon sequestration capacity. For these reasons, wood can help businesses in the construction industry to comply with the many environmental regulations they face.

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**Carbon emissions**

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**Construction and lifetime use of energy for heating, lighting, cooling and ventilation of buildings accounts for 45-50% of global carbon emissions.**

**Construction**

Sustainable building with FSC certified wood
“The subjective impression that wood products perform better than competing products with respect to the environment can be scientifically proved.” 5
Resource depletion and pollution

Wood is a renewable material, whereas most other mainstream construction materials – such as metals, concrete and PVC – are not. Supply of some of these materials, particularly petroleum-based plastics, is facing a crisis as shrinking reserves of non-renewable resources contrast starkly with rapidly growing demand. The Food and Agriculture Organization of the United Nations concludes that in terms of resource availability, wood from sustainable forest management systems is to be preferred over similar products made of non-renewable material.

The residues of many petroleum-based plastics are environmental pollutants. By contrast, residues from the forest and wood industry do not pollute the environment and can often themselves be re-used as raw materials or renewable fuel. In addition, as more forests are managed responsibly, the long-term availability of wood can be ensured.

Environmental impacts of different construction materials

A 2010 study published by the Canadian Wood Council compared the environmental effects embodied in the structure and the envelope of three similar houses, one designed primarily using wood, one using concrete and one using steel. The results show that for the first 20 years, in comparison with the wood design, the steel and concrete designs respectively:

- embodied 26 percent and 57 percent more energy
- emitted 34 percent and 81 percent more greenhouse gases
- released 24 percent and 47 percent more air pollution
- discharged 4 and 3.5 times more water pollution
- used 11 percent and 81 percent more resources from a weighted resource use perspective
- produced 8 percent and 23 percent more solid wastes.

The results of a Life Cycle Assessment published in 2002 comparing the environmental impacts of solid wood, linoleum and vinyl flooring materials (see comparisons on the next page) show that flooring made of wood has lower energy use and CO₂ emissions than the other materials. It also performs better in other environmental impact categories.

A study conducted by Forestry Commission Scotland shows that increasing the amount of timber in buildings by replacing materials such as concrete and steel can lead to a reduction of up to 86 percent in greenhouse gas emissions.

Performance

It is not just for environmental reasons that people use wood to build with. Quicker to work with, constructing buildings using wood is also not as weather-dependent as constructing with many other materials, so it can reduce the time and costs of building a property. Wooden structures can also be pre-engineered offsite, using the highest levels of quality control and accuracy, which can make construction more efficient.

Wood has excellent thermal insulation properties and can therefore cut the heating or cooling costs of a building; it is commonly used in Passivhaus energy-efficient buildings. Wood-frame buildings can easily be changed to adapt to new needs and thus extend their life, and wood can be re-used in new buildings. Wood is more earthquake resilient than concrete. And, wood can contribute to a better inner-room climate as it absorbs moisture from the air when the humidity level in a space is high, releasing it when the humidity level is low. In addition, wooden products tend to not emit any harmful vapors, thus also in this sense contributing to a healthy inner-room climate.

* Nowadays, some metal construction materials such as steel and aluminum are highly recyclable.
Replacing materials such as concrete and steel can lead to a reduction of up to 86 percent in greenhouse gas emissions.
Materials compared

The following graphs show the results of a Life Cycle Assessment (LCA) comparing the environmental impacts of windows made either of aluminum, PVC or wood. LCA is a widely accepted method to assess the potential environmental impacts of a product or service throughout its lifetime (i.e. from raw material extraction through materials processing, manufacture, distribution, use, repair and maintenance, and disposal or recycling). The results show that wood windows perform better in terms of environmental impacts compared to the commonly used alternatives of aluminum or PVC.

The eutrophication potential of wood is 55% lower than aluminum and 55% lower than PVC (kg phosphate-eq.).

The photochemical ozone creation potential of wood is 69% lower than aluminum and 69% lower than PVC (kg ethene-eq.).

The acidification potential of wood is 138% lower than aluminum and 119% lower than PVC (kg SO₂-eq.).

The global warming potential of wood is 20% lower than aluminum and 9.9% lower than PVC (kg CO₂-eq.).
High-profile projects such as the London 2012 Olympic Games are a stunning showcase for the possibilities of wood. More than two-thirds of the wood used to build the Olympic Park was FSC certified. The iconic Olympic Velodrome used 56 km of Siberian Pine for the surface of the cycling track, all of which came from FSC certified sources.

In order to meet its target of maximizing the use of legal and sustainable timber, the Olympic Development Authority created a Timber Management Plan and a Timber Supplier Panel, which all contractors on the Olympic Park were obliged to use. As Charles Thwaites, Executive Director of FSC UK, comments: “When a project of this magnitude can place high environmental standards at its heart, it should surely encourage others to strive to do the same. We hope that an increased awareness of FSC and greater demand for sustainably sourced timber and paper will be one of the enduring legacies of London 2012.”
Durability

When it comes to durability, a study of buildings demolished in Minneapolis and St. Paul, USA showed that wood buildings had a very long lifespan. Sixty-three percent of the wood buildings demolished were over 50 years old and the majority were past the age of 75. Furthermore, because the reasons for demolition were related to changing land values, lack of suitability for current needs and lack of maintenance of non-structural components, rather than performance, the study showed that structural systems made from wood were fully capable of meeting the longevity expectations of buildings. According to the Canadian Wood Council, with an understanding of how to protect wood from decay and fire, wood buildings can be expected to last for as long as we wish.

No-maintenance wood materials

As with all construction materials, more understanding is needed of how to keep wood from decaying in order to make buildings last longer. New methods of pressure impregnation mean that it is now possible to build with wood that does not require any maintenance – without the use of toxic chemicals which have traditionally been used in the pressure-impregnating of wood. This further increases the competitive credentials of wood as a green alternative to steel or concrete.

People’s positive response to wood

Some research indicates that there is a link between our perceived well-being and the use of wooden objects and finishings in interiors. A Canadian study from 2006 suggests that “people’s response to wood is, for the most part, extremely positive, with subjects generally showing a strong preference for rooms containing many wood details. There also appears to be a strong belief that the use of wood can help to create healthy environments, and commonly evoked descriptions for wooden rooms include ‘warm’, ‘comfortable’, ‘relaxing’, ‘natural’ and ‘inviting’.”

Recent years have seen the emergence of a trend in ‘green living,’ reflecting a need felt by many consumers for a more eco-conscious and healthy lifestyle. This trend includes a preference for natural materials such as wood for interiors, furnishings and houses.
Seattle’s Bullitt Center showcases the possibilities of wood construction techniques. Using wood from the nearby forests of the Pacific Northwest, the 50,000 square foot building uses heavy timber framing for the upper four floors, which is still uncommon for new commercial buildings. By using timber framing over a concrete base, the Bullitt Center is combining the materials wisdom of historic construction techniques with the benefits of modern engineering. All of the wood in the Bullitt Center is FSC certified and sourced from within a 600 mile radius, helping it to achieve its aim of being the greenest commercial building in the world.

“The goal of the Bullitt Center is to change the way buildings are designed, built and operated to improve long-term environmental performance and promote broader implementation of energy efficiency, renewable energy and other green building technologies,” states the website of the Bullitt Center. The Center is owned by the Bullitt Foundation, which developed the building and supports environmental projects throughout the Northwest USA.

The building uses glued laminated timbers, which can not only be designed and engineered for a long lifespan, but create incentives to use smaller, second-growth timber and reduce market pressure on rare old-growth forests. FSC strictly protects rare old-growth forests and their rich ecosystems.
One of the disadvantages commonly associated with wood for outdoor use is its susceptibility to the weather. Traditionally, wood has been weatherproofed through the regular application of chemical treatments.

In recent years, Norwegian company Kebony has commercially applied a new technology that modifies wood in an environmentally-friendly manner in order to prevent decay and improve performance and appearance. With this technology, FSC certified wood is made more durable, harder and more stable using liquids from bio-waste material. The durability of the wood is achieved without the drawbacks that come with traditional environmentally unfriendly impregnation methods.

‘Kebonized’ wood carries the Swan Eco-label, the official sustainability eco-label of the Nordic countries. It provides an alternative to hardwoods from tropical regions as it is very resistant to weather and wear, has a strong decay resistance and a long lifespan. According to the company, Kebonized wood lasts seven to nine times as long as the original wood of the same species and requires no maintenance. It can be used for many different purposes, but is especially suitable for cladding and decking.

“One of the advantages of Kebony is that it is real wood, and not a composite product involving plastics, as many alternative construction materials in decking and cladding are,” says Jan T. Nielsen, Director of Marketing at Kebony. “It is therefore of consistent quality, and the waste it produces is not poisonous. At the end of its lifecycle, Kebony can be burnt in a fireplace without any negative side effects.”

Kebony uses FSC certified wood. Nielsen explains why they chose FSC: “We view FSC as an organization that does a proper job and it is the strongest standard in the market we are working in. As we are importing wood into the EU, we know that when our wood is FSC certified we can rest assured that it supports us complying with the new EU Timber Regulation.”
FSC in green building schemes

The construction of buildings complying with the standards of various green building schemes has boomed in recent years and proved to be an important driver for FSC certification. Ratings systems such as the USA’s Leadership in Energy and Environmental Design (LEED) and the UK’s Building Research Establishment’s Environmental Assessment Method provide credits – and thus, market incentives – for FSC certified products.

In the USA for example, green building represented 25 percent of all new construction activity in 2010, and the value of all green building construction starts was up 50 per cent from 2008 to 2010. Every day, the LEED program certifies 1.5 million square feet of building space, and 54,000 projects with a total of nearly 10.1 billion square feet of building space are participating in the program. In McGraw-Hill’s database of 60,000 LEED project specifications, collected annually, FSC certified wood was found to be the most frequently specified green-building product.

Grocon’s Pixel building in Melbourne, Australia has earned the country’s first FSC full project certification, serving as a world-leading showcase for responsibly sourced wood as a green building material. 60% of the building’s wood was sourced from FSC certified forests with the balance of wood from reclaimed sources.
Since 2008, the USA’s Lacey Act prohibits the trade and use of illegally-harvested timber, both imported and domestically produced.

National and international regulations on wood

Around the world, many public procurement policies make certification a pre-requisite for selecting suppliers of construction materials. In the UK, for example, timber procurement by central and local government – which accounts for around 40 percent of the UK market – is covered by a sustainable timber procurement policy, which recognizes FSC and Programme for the Endorsement of Forest Certification (PEFC) certified timber. And there are many other examples of laws and regulations governing the purchase of legal and sustainable wood-based products (see table overleaf).

A key example is the European Union Timber Regulation (EUTR), which came into force on 3 March 2013, and is designed to prevent illegally-logged timber to be placed on the European market. The EUTR exposes importers of illegal timber or products derived from these to serious penalties and obliges them to have a “due diligence system” in place to routinely control the legality of the imported products. Products from verifiable sources with full chain of custody certification are recognized as in lowest risk categories. FSC certification can be used by such importers as part of their due diligence system.

Australian legislation will follow the EU approach by requiring a due diligence system, of which the specifics will be formulated before November 2015. In this case, there is a good chance that FSC certification will be recognized as an automatic proof of compliance with the due diligence requirements. Since 2008, the USA’s Lacey Act prohibits the trade and use of illegally-harvested timber, both imported and domestically produced. Similar legislation in Switzerland demands transparency about the origin and species of imported timber.
Green public procurement policies for sustainable wood-based products.

In the following table an overview is provided of countries that have adopted public procurement policies for sustainable wood-based products. The actual number of countries having such a policy may be higher as more and more countries are adopting green public procurement policies nowadays.

<table>
<thead>
<tr>
<th>Country</th>
<th>Products</th>
<th>Mandatory for...</th>
<th>Voluntary for...</th>
<th>FSC specifically?*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria**</td>
<td>Wood products</td>
<td>Federal government (departments and agencies/non-departmental public bodies)</td>
<td>Devolved states and communities</td>
<td>Yes</td>
</tr>
<tr>
<td>Country</td>
<td>Products</td>
<td>Mandatory for...</td>
<td>Voluntary for...</td>
<td>FSC specifically?*</td>
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<td>------------------</td>
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<td>--------------------</td>
</tr>
<tr>
<td>Latvia**</td>
<td>Timber products</td>
<td>Policy is voluntary</td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>Lithuania**</td>
<td>Timber used in construction or in the production of paper, furniture, wall panels, thermal insulation or windows.</td>
<td>Contracting authorities conducting public procurement</td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>Malta**</td>
<td>Graphic Paper (100%) Furniture (10-30%) Construction (10-30%) Thermal Insulation (10-30%) Wall Panels (10-30%) Windows, Glazed Doors and Skylight (10-30%)</td>
<td>Mandatory for graphic paper</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Netherlands**</td>
<td>Timber and paper</td>
<td>A 100% sustainable procurement by 2015</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>New Zealand***</td>
<td>Timber and timber products</td>
<td>Public Service Departments, The NZ Defence Force and NZ Police</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Romania**</td>
<td>Wood products</td>
<td>Policy is mandatory</td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>United Kingdom**</td>
<td>Timber and wood products</td>
<td>Central Government departments, their executive agencies and Non-Departmental Public Bodies</td>
<td>Local authorities and the wider public sector in England. Similar policies in Scotland, Wales and Northern Ireland.</td>
<td>Yes</td>
</tr>
</tbody>
</table>

* This refers to whether or not FSC certification is explicitly accepted as sufficient proof that wood-based products come from sustainable / responsible sources

** WWF: Internal survey in the network of WWF, 2012

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