



Smart Purchases Big Impact

Sustainable Purchasing Guide
Wood Products

Sustainability... your university, your world

A small, stylized black silhouette of a tree with many leaves.



Introduction

This section provides information on currently available **wood product** options that can help to move the University of Saskatchewan toward its sustainability goals. Living within the boundaries of our sustainability objectives requires us to apply two main strategies:

Dematerialization requires that we reduce the amount of materials as much as possible; and that we continually move toward the use of 100% recycled content.

Substitution requires that we find less harmful materials to replace those that currently damage and are not recyclable.

Sustainable purchasing is about including social, environmental, financial and performance factors in a systematic way. It involves thinking about the reasons for using the product (the service) and assessing how these services could be best met. If a product is needed, sustainable purchasing involves considering how products are made, what they are made of, where they come from and how they will be used and disposed.

Finally, remember that this is an evolving document – it will change with new information as our understanding of sustainability impacts and potential solutions improves.

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**Smart Purchases
Big Impact**

Wherever possible **CHOOSE** products that employ a combination of characteristics listed in the left hand column, and **AVOID** products that demonstrate characteristic in the right-hand column.

CHOOSE

- Recycled plastic wood
- FSC certified lumber
- Fast growing renewable materials
- Reused or recycled lumber

AVOID

- Virgin lumber
- Formaldehyde and VOCs
- CCA pressure treated wood

Option: Choose Reused Lumber and Recycled Wood Products

Strategy: Dematerialization – less waste (SO 1, 2, 3, 4)

When older buildings are deconstructed, the wood can often be reused in other construction projects or to form new wood products. By recycling wood, it is possible to reduce the use of virgin lumber and all of the associated sustainability impacts. These impacts typically include the physical disturbance of nature, the use of pesticides and fertilizers, the energy consumed in the production process, and the use of adhesives and wood treatments.

Option: Choose FSC and Other Certified Wood Products

Strategy: Dematerialization – less waste (SO 1, 2)

Another option is to purchase certified wood. There are a number of internationally recognized certification bodies that promote the use of wood that has been grown and harvested using environmentally and socially responsible practices. These standards include: limiting or eliminating the use of chemical pesticides, land management practices that harvest selectively and at lower yields, and protecting the land rights of local communities.

Option: Choose Wood Products Not Treated With Formaldehyde and Other Toxins

Strategy: Substitution (SO 2)

Wood products, such as plywood and particleboard often contain adhesives and have been treated to be stain-resistant and fire retardant. The compounds in these adhesives and external treatments can escape over time. This process is known as off-gassing. When these wood products are used inside, air quality will be reduced. When used outdoors, these products will release chemicals into the environment directly.

Option: Choose Wood Free Of Chromated Copper Arsenate (CCA)

Strategy: Substitution (SO 1, 2, 3, 4)

Using CCA pressure-treated wood contributes to the accumulation of chromium, copper and arsenic in nature. These substances exist in nature, but only in small concentrations. They are not biodegradable and can bio-accumulate. Choose wood which has not been pressure-treated by this process.



Option: Choose Fast Growing Renewable Materials

Strategy: Substitution (SO 1, 2, 3, 4)

For some products, it is possible to substitute other materials for wood. Agricultural fibers that mature quicker than tree fibers are being used to make products that are conventionally made with wood. For example, straw is an agricultural waste product that is being used for plywood and particleboard replacement.

However, it is possible that alternative products may also have associated sustainability impacts, such as the use of pesticides and intensive monoculture practices that may lead to soil erosion.

Option: Use Recycled Plastic Wood

Strategy: Substitution (SO 1, 2, 3, 4)

Another wood substitute is recycled plastic lumber. This lumber is either completely or partially made of recycled post-consumer plastic waste. Lumber made with both wood and recycled plastics are known as composites. Recycled plastic lumber has been used for fences, decks, benches and children's playground structures. Using these materials prevents them from ending up in the landfill or being incinerated.

Using recycled plastic lumber reduces the amount of virgin lumber used and all associated sustainability impacts. For example, since plastic lumber does not rot and is not harmed by termites, it does not need to be treated with CCA and so avoids those potential impacts as well.

However, recycled plastic lumber may also have sustainability impacts, such as the emissions from energy used to collect and process post-consumer plastic waste, and the release of chemical additives in the production process.

Arriving at the currently preferred options

1. Identify the service

Wood is a material that provides structure and aesthetics to a wide range of products including buildings, furniture, pallets, fences, decks, and play structures.

2. Assess the need

The University of Saskatchewan uses wood for numerous purposes in many spheres.

3. Identify the contents

The main component of wood products is, of course, the **wood**. However, wood products may also contain **preservatives** (e.g. pressure-treated wood), **adhesives** (e.g. plywood, orientated strand board, particleboard and medium density fiberboard) and **laminates** (e.g. glued laminated timber-glulam).

4. Identify sustainability impacts

i.systematically increasing concentrations of substances from the earth's crust?

- The production of wood products, from the management of forests to the delivery of the final product, requires large

amounts of energy. Although the industry often burns woodscraps for energy, it still requires significant amounts of energy from **fossil fuels**. Producing and using this energy results in increasing concentrations of carbon dioxide (CO₂) and sulfur oxides (SO_x), which in turn cause negative impacts such as climate change and acid rain.

- To produce pressure-treated wood, raw wood is first bathed in a solution that includes copper (toxic to the fungi that cause rot), arsenic (an insecticide) and chromium (to try to prevent leaching). This treatment became known as **chromated copper arsenate** (CCA). The wood is then pressure-treated; a process where it is placed in a cylinder and a vacuum sucks air and water out of the wood cells then fills these with a mixture of water and pesticides. As the wood dries, the chemicals are trapped inside. Over time, small amounts of chromium, copper and arsenic leak out of the wood into the ground and groundwater, or are released when the wood is burned. These metals do not break down and accumulate in nature.

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4. Identify sustainability impacts (con't)

ii. ...systematically increasing concentrations of substances produced by society?

- Synthetic pesticides, herbicides and fertilizers are added to control pests and encourage tree growth in managed forests. Many of these are **persistent chemical compounds** that do not break down and accumulate in nature.
- **Volatile organic compounds** (VOCs) are used in wood products as adhesives. VOCs do not break down easily and thus accumulate in nature, contributing to a variety of problems such as the formation of smog.

iii. ...systematically degrading nature by physical means?

- Forest management practices that remove trees at a greater rate than they can regrow or weaken local biodiversity and overall ecological health are unsustainable. Examples of these practices include **clear-cut harvesting** methods and **monoculture** planting. Clear-cutting has many disruptive effects including the reduction of biodiversity, the destruction of wildlife habitat, severe erosion of soil and increased flooding.
- Wood products and production waste often end up in **landfills**. Ongoing reliance on landfills as a form of waste disposal will require more and more physical space, displacing and destroying natural areas and ecosystems. In addition, wood waste taken to landfill may decompose into **methane** if the environment is without oxygen. Methane is a problematic **greenhouse gas** with much higher climate change potential than carbon dioxide.

iv. ...systematically undermining people's ability to meet their basic human needs?

- In some instances, forestry practices have infringed on the ability of local communities and indigenous peoples to meet their needs. These groups often rely on the forest for their livelihood, and in many cases have lost **traditional use and ownership** of the land.
- A number of compounds used in wood products can be harmful to human health. For example, formaldehyde gas that is released from particleboard and arsenic from pressure-treated wood are both suspected to be **carcinogens**. Other concerns for human health include the use of pesticides.

5. Envision sustainable wood products

- Sustainable wood products would contain wood that is **harvested** in a manner where:
 - Local communities in regions where the wood is harvested do not lose the ability to meet their basic needs and participate in ongoing economic benefits
 - Harvesting does not occur at a faster rate than

forests can regrow, and forestry practices minimize short-term and avoid long-term biodiversity and ecosystem impacts.

- **Production processes** for sustainable wood products would use materials that can be assimilated in nature, or are 100% captured in technical cycles for reuse. All waste generated in the production process would be used as an input to another process. The energy used at various stages of production and value-added processes is renewable and carbon-neutral.

6. Identify and prioritize alternatives

Step 6 helps identify the product or service that offers the best pathway toward meeting all four of our Sustainability Objectives by using the following three criteria for assessment:

- a) Does the product or service move us in the right direction with regards to our four Sustainability Objectives?
- b) Does the product or service create a flexible platform for the next step toward sustainability?
- c) Is the decision financially viable?

Resources and Additional Information

1. Sustainable Procurement of Wood and Paper-based Products
www.greenbiz.com/research/report/2009/08/01/sustainable-procurement-wood-and-paper-based-products
2. EcoLogo Certified Wood Products
www.ecologo.org/redirect.asp
3. Forestry Stewardship Council of Canada
<http://www.fsccanada.org/>
4. Certified Wood Products
<http://certifiedwoodproducts.net/>



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