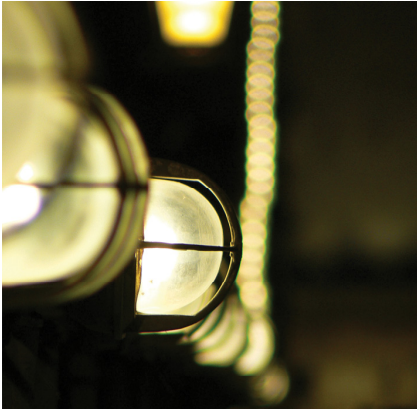




Smart Purchases Big Impact

Sustainable Purchasing Guide
Bedding

Sustainability... your university, your world

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



Introduction

This section provides information on currently available options for **bedding** 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

- Products manufactured in Canada.
- Encased products avoid chemicals
- Natural rather than synthetic fibres
- Natural latex foam

AVOID

- Polybrominated diphenyl ethers
- Wrinkle-resistant fabrics
- Polyurethane foam

Option: Choose Canadian-made products

Strategy: Substitution (SO 2)

Choose mattresses and pillows made in Canada. Not only does this reduce the transportation requirements of the product, it also ensures that the product meets Canadian manufacturing standards. In the context of bedding, this refers to the prohibition of polybrominated diphenyl ethers. These chemicals are a group of fire retardants found in numerous products, including bedding. They are known to be persistent, to accumulate over time and are toxic. Unfortunately products manufactured in other nations may still contain these chemicals depending on their regulations.

Option: Choose Natural Latex

Strategy: Substitution (SO 2)

The manufacture of polyurethane involves the use of multiple carcinogenic chemicals at various stages of the production process. It also relies on the unsustainable use of petroleum-based polyols. This makes it an undesirable material since several viable alternatives exist. Soy-based polyurethane is better than the traditional variety but still involves the creation of carcinogens and can only be used to offset some of the petroleum content.

Another option is to replace polyurethane with latex. Synthetic latex remedies many of the problems with polyurethane although it still involves the use of some carcinogens in the production process; they are generally not harmful for the end consumer. The best alternative to polyurethane in furniture and mattresses is natural latex, which is derived from the rubber tree plant and is a renewable resource. It is both the safest and most sustainable alternative.

Option: Choose natural fibres

Strategy: Substitution (SO 1, 2)

Choose natural, and where possible, organic fibres. Organic wool or goose down pillows are preferred, although sometimes these materials aggravate allergies. Barrier encasing generally reduces the likelihood of allergic reactions.

For sheets, blankets and comforters, natural (preferably organic) materials are preferred to synthetic materials, such as polyester. Many synthetic materials are made of petrochemicals, a non-renewable resource. In addition, synthetic fibres do not breathe the way natural fibres do, and over time the chemicals in them can evaporate causing a number of negative health and environmental impacts.



Option: Reduce Exposure to Harmful Chemicals

Avoid wrinkle-resistant bedding, which is often treated with formaldehyde (a carcinogen).

When products are immediately wrapped in plastic after manufacture there is no opportunity for dissipation of chemicals in the products. Give new bedding ample opportunity air out before use.

In the case of mattresses and pillows, exposure can be further reduced by wrapping them in plastic or a high-thread-count cotton barrier encasing or (mattresses only), cotton padding wrapped around the foam core. Natural cotton barrier cloth is an excellent way to reduce exposure to mattress emissions and also protects against small allergen particles including dust mites and animal allergens.

Arriving at the currently preferred options

1. Identify the service

Bedding is necessary to provide a comfortable and hygienic environment for sleep.

2. Assess the need

Quality bedding is needed to ensure the comfort of the students staying in residence.

3. Identify the contents

Mattresses are made of a variety of materials, which may include **polyurethane**. Petroleum-based **synthetic fibres**, such as polyester, are commonly used as covering materials. Depending on their point of manufacture, mattresses may be treated with **fire retardants**.

Pillows may be made of natural materials such as feathers, wool and cotton, or man-made materials such as polyurethane and synthetic fibres or a combination of both. In addition, pillows may be made from latex foam which can be either natural or synthetic.

Sheets, blankets or comforters may similarly be made of a variety of either natural or man-made fibres. Wrinkle-resistant bedding is treated with **formaldehyde**.

4. Identify sustainability impacts

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

- **Fossil fuels** are combusted to provide energy during the extraction of raw materials, transportation, and production of bedding products. The combustion of fossil fuels leads to

an increase in concentration of substances extracted from the earth's crust in nature (CO₂, CO and SO_x). Increasing concentrations of these substances in nature can contribute to a number of negative effects such as climate change and acid rain, as well as to negative human health impacts.

- **Petroleum** is also used as a feedstock for many synthetic fibers, such as polyester, as well as for polyol, a component of polyurethane. Petroleum is a material that is extracted at a rate much greater than its redeposit back into the earth's crust.

ii.systematically increasing concentrations of substances produced by society?

- Many mattresses and pillows contain polybrominated diphenyl ethers, a group of flame-retardants and stain inhibitors that have been linked to cancer, birth defects and fertility problems. Until about five years ago, manufacturers of foam used in mattresses and upholstered furniture routinely treated the foam with PBDEs. Biologists have also discovered that PBDEs are persistent in the environment and accumulate over time.
- Formaldehyde is used to create wrinkle-resistant bedding. Formaldehyde is applied with heat so it is permanently trapped in the fibre. According to the International Agency for Research on Cancer, formaldehyde is a cancer-causing substance. It is also suspected that formaldehyde causes allergic reactions in a significant part of the population. The primary ways that people are exposed are through inhalation or absorption through the skin.
- Polyurethane is the base material for thousands of products, including bedding. The manufacturing process involves the use of multiple carcinogens including toluene diisocyanate and methyloxirane. Workers are often exposed to these chemicals in the manufacturing process.

continued on page 3...



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

- Polyurethane does not break down in **landfills**. This contributes to the physical degradation of nature by increasing the amount of land required to store waste. Similarly, many synthetic, petroleum-based fibers do not break down with time.

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

- A number of the compounds produced by the combustion of fossil fuels and other processes to create bedding products (e.g. polybrominated diphenyl ethers, chlorinated phosphate esters, or TCEP, formaldehyde, toluene diisocyanate, and methyloxirane) negatively affect **human health**.

5. Envision sustainable bedding

Sustainability requires that materials be kept within natural cycles (where materials can be easily assimilated by nature) or tight technical cycles (where materials can be reused indefinitely in processes that do not move us away from our sustainability objectives). Sustainable bedding would not contribute to systematic increases of substances extracted from the earth's crust, or of human-made substances. This means that it would either (1) not contain any substances that could systematically increase in nature or (2) that these substances would be taken back and re-used entirely.

Bedding would either be produced from bio-based materials that natural ecosystems can easily assimilate, or be 100% recycled. The energy used for extracting raw materials, producing and transporting the bedding would be generated from sustainable renewable sources in a carbon-neutral way.

6. Identify and prioritize alternatives

To identify the best options, review the Current Options on page one and choose the most appropriate alternative by using the following three criteria for assessment:

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

Resources and Additional Information

1. Canada's Polybrominated Diphenyl Ethers Regulation
<http://canadagazette.gc.ca/rp-pr/p2/2008/2008-07-09/html/sor-dors218-eng.html>
2. Information on Formaldehyde
<http://www.iarc.fr/en/media-centre/pr/2004/pr153.html>



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