



THE AGENCY
FOR CO-OPERATIVE
HOUSING

L'AGENCE
DES COOPÉRATIVES
D'HABITATION

Green Building Products & Materials Agency Resource Document





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Introduction

When your housing co-op renovates, you may be making changes to the building exterior or interior, site elements or mechanical systems and components. Bear in mind that any or all of these may need an upgrade if they are to meet, if not exceed, today's standards.

Instead of replacing worn-out materials with something similar, you may want to consider "green" (environmentally preferred) options that will deliver extra benefits to your co-op when you've completed the renovations.

Using green materials can help reduce your housing co-op's overall carbon footprint and environmental impact.

This resource document contains information and a list of various green building products, including interior or exterior wall finishes, appliances and more, which we encourage you to use for your next project.

What are Green Building Products/Materials?

"Evaluating and Selecting Green Products" (in the Whole Building Design Guide) defines green products/materials as those that reduce or eliminate harmful chemical content and have less environment impact over their life cycle (as defined through life-cycle analysis).

According to Green Building Canada, a product/material might be considered green if it is

- natural and non-toxic
- renewable
- produced sustainably
- processed and manufactured with close attention to resource efficiency
- local
- recycled, reused/recyclable, reusable
- durable

"Evaluating and Selecting Green Products" lists other common indicators of green products/materials, such as these:

- The products promote good [indoor air quality](#), typically through reduced emissions of volatile organic compounds (VOCs) and/or formaldehyde.

- The products/materials have low embodied energy (the energy required to produce and transport materials), which results in low embodied carbon emissions.
- The products/materials do not contain CFCs, HCFCs, HFCs or similar chemicals that deplete ozone or have a major impact on global warming.
- The products are energy-efficient technologies, such as solar PV systems, solar hot water heating, geothermal heating, wind turbines or micro hydro.
- The products promote water conservation through rainwater harvesting systems, grey-water systems or low-flow toilets, faucets and showerheads.



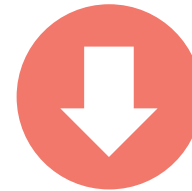


Advantages and Disadvantages of Green Building Products/Materials



Here are some advantages of choosing green building products/materials.

- They reduce environmental impact during construction or major renovations.
- The impact of the building product/material on the environment is known.
- The selection and use of the products can contribute to achieving a higher score on green-building rating systems, such as [LEED](#).



However, choosing green buildings products/materials does have some disadvantages.

- Green building products may initially be more costly than more commonly used building products.
- Payback periods may be longer than those for a standard building product.
- Green building products may be unavailable or hard to find in some locations.

Selecting Green Building Products/Materials

Your co-op may want to consider these approaches:

Become familiar with industry tools and resources. A large and growing number of resources (see Appendix B) are available to help you choose materials wisely.

Develop a process for systematic research and vetting that begins at a modest level and expands as you develop expertise.

The Whole Building Design Guide's Recommended Strategies when Starting Out

Define the scope of work

Building materials vary in their level of sustainability and healthfulness. To make your choice easier, start by defining your highest priority in products or materials. An initial scope of work may include the following:

- Commonly used flooring, wall, and ceiling finishes. The initial focus when considering these finishes may be on co-op members' health and wellness.
- Major structural materials, including concrete, steel, masonry, and wood. These high-mass materials typically represent the highest embodied carbon elements in a project (wood being the exception). Your co-op's initial focus may be on the characteristics that can reduce their carbon footprint, such as recycled content and local procurement. In wooden structures, sustainable sourcing of forest products will typically be your focus.

You will want to consider any aspects of materials procurement that are particularly important to your co-op and its members.



Lean on the ratings system

The Green Building Rating systems, such as [LEED](#), were developed over many years, based on the expertise of many building professionals. The criteria these systems have established for materials provide the most direct way for practitioners to “jump start” the process of using green products, regardless of whether your co-op is pursuing a green certification of some kind.

The Canada Green Building Council (CAGBC) is the [certification and credentialing body](#) that administers project certifications for [Zero Carbon Building Standards](#), [LEED](#), [Investor Ready Energy Efficiency \(IREE\)](#) and [TRUE](#). LEED certification provides independent, third-party verification that a building project was designed and built, or is operated, to achieve high performance in six areas of human and environmental health:

- Location and transportation
- Sustainable site development
- Water savings
- Energy efficiency
- Materials selection
- Indoor environmental quality



Become familiar with information sources for product transparency

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The disclosure of detailed transparency data is becoming the norm for manufacturers of building products.

As an initial step, request transparency data for the products/materials prioritized for your renovation, even if you are not ready to use the information. Requesting the data sends the manufacturers a signal about the importance you place on this information. It also encourages practitioners to start processing these data and identifying differences among products.



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Become familiar with green product listings and certifications

Many manufacturers provide product transparency and information on sustainability/wellness on their websites. However, using specialized green-product websites to find products with comparable green characteristics is more efficient.

Becoming familiar with these resources—and the differences in the information they provide—can streamline the process of finding appropriate products. Most certification websites also provide listings of products that have won their endorsement. An example would be the Forest Stewardship Council (FSC)-Certified Wood Products - <https://ca.fsc.org/ca-en/find-fsc-products-suppliers>.



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Develop initial green product specifications

While product vetting is a key aspect of incorporating green materials into a project, you will also need to set out green performance criteria in the project specifications.

Many projects allow “or equal” substitutions for products listed in the construction documents, so it is critical for contractors to understand that you insist on green performance criteria being met and supporting documentation provided. As a first step, focus on the types of materials you prioritized at the beginning of the project.



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APPENDIX A: List of Recommended Green Building Products/Materials

The following is a list of green building products/materials for consideration.

Exterior Wall Finishes

- Fibre cement siding as an alternative to vinyl siding. The fibre cement siding should be made of natural wood fibres. Otherwise, it is likely to contain Portland cement, which has a high embodied energy.

Insulation (Attics, Walls)

- Cellulose insulation, which is made from recycled paper fibres
- Hempcrete, a composite of hemp, lime and water used for insulating walls and attics

Structure

- Earth: adobe, cob, rammed earth, compressed earth blocks or bricks
- Insulated concrete forms (ICF): hollow forms (such as panels or blocks) made of composite materials like rigid polystyrene foam and plastics. The ICFs are filled with concrete during construction and create walls that replace the need for conventional framing and insulation.
- Recycled steel for structural and framing elements, roofing, siding. Recycled steel is durable and recyclable at the end of its lifespan. Unfortunately, the embodied energy of steel is quite high.
- Structural insulated panels (SIPs): panels used for walls, as well as for roofing. The primary green benefit is their thermal performance.
- Wood/ FSC-certified wood: The carbon footprint of wood will vary depending on how close the co-op is to the supplier.

Windows and Doors

- ENERGY STAR rated windows and doors

Finishes

- FSC-certified wood materials
- Recycled content or materials that can be recycled or reused at the end of their service lives, such as metals, wood, plastic and glass
- Bamboo: used in a wide range of finishings, including flooring, cabinets, countertops and wall coverings

Millwork and Cabinetry

- Recycled content, such as papercrete, enviroboard, wood-plastic composite
- Refurbished furniture and fixtures, such as cabinets, doors, windows and floors
- FSC-certified wood: The carbon footprint of wood will vary depending on the proximity of the co-op to the supplier.

Appliances

- ENERGY STAR rated appliances
- Electrical and Plumbing Fixtures
- LED fixtures
- Low-flow toilets and showerheads
- ENERGY STAR rated electrical and plumbing products

Mechanical Systems

- Heat-pump systems for heating and cooling a home
- High-efficiency furnaces, boilers, water heaters
- Heat-/energy-recovery ventilators (HRVs/ERVs)
- “Smart” thermostats

Site Components

- Earth used as rammed earth and compressed earth blocks
- Stone for landscaping, patios and steps

Other

- Electric Vehicle (EV) chargers
- Water coolers

APPENDIX B: References & Resources

Whole Building Design Guide - Evaluating and selecting Green Products: <https://www.wbdg.org/resources/evaluating-and-selecting-green-products>

Green Building – Green building materials: <https://greenbuildingcanada.ca/green-building-guide/green-building-materials/>

Building Green’s “12 Product Rules” – Useful guide for deciding on which materials/ products are priorities: <https://www.buildinggreen.com/infographic/12-product-rules>

Canada Green Building Council - <https://www.cagbc.org/>

Sustainable Sources LLC – <https://sustainablesources.com/>

List of ENERGY STAR certified products - <https://natural-resources.canada.ca/energy-efficiency/energy-star-canada/energy-star-products/list-energy-star-certified-products/13631>

Specialized Green Product Websites:

- Mindful Materials - <https://www.mindfulmaterials.com/>
- UL Spot - <https://spot.ul.com/>

Materials Certification Websites:

- Cradle-to-Cradle - <https://mbdc.com/>
- SCS - <https://www.scsglobalservices.com/certified-green-products-guide?scscertified=1>
- Forest Stewardship Council (FSC)-Certified Wood Products - <https://ca.fsc.org/ca-en/find-fsc-products-suppliers>