

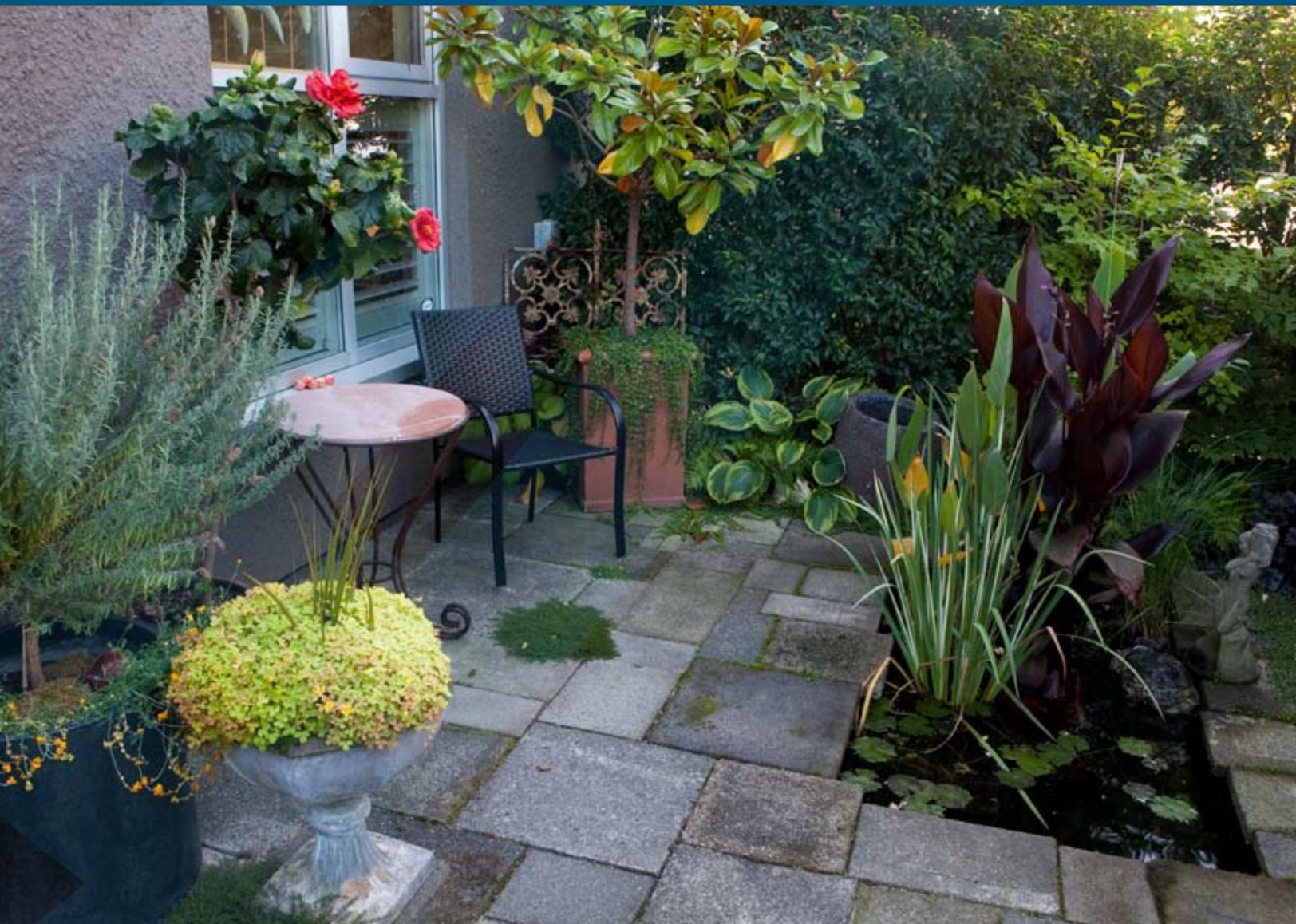


VANCOUVER
GREEN CAPITAL*

Landscaping

green home renovation

healthy homes for a healthy environment





Green

What is a Green Renovation?

It's an approach to home improvement with the goal of not only making your house look better, but work better—for both you and the environment. Want a healthier home? Lower utility bills? Reduced maintenance? A cleaner planet? A green renovation helps you realize a range of far-reaching benefits from a single smart design. With careful planning, you can create a landscape that combines beauty, efficiency, comfort and convenience with health and conservation.



Cover photo and above: © Jacqueline Koch.

Why

Why Consider a Green Renovation?

SAVE MONEY

Long-lasting, low-maintenance landscape elements prove their value over time. Salvaged and reused materials often cost a fraction of the price of new, while also providing a patina of history and character.

MAKE A HEALTHIER HOME

When you take a green approach to landscape materials selection, you realize health benefits as well as peace of mind. Most people don't realize that many landscape elements contain toxic chemicals, which then can be tracked into your home by people and pets. By making safety a priority, you can identify potential hazards in landscaping materials and then choose those that minimize your family's health risks.

REDUCE ECOLOGICAL IMPACT

When you take a green approach with a landscape project, you choose products with a range of far-reaching benefits: from materials that are easier on the environment during their manufacturing to those that help restore natural ecological functions to your landscape, and even reduce the need for supplemental water, fertilizer, pesticides, and toxic chemicals or coatings.

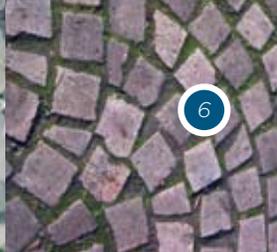
Landscape Materials

Decorative? Naturally. But your home's landscape also matters for financial reasons. According to the BC Landscape and Nursery Association, appropriate landscaping can reduce energy bills (via shading and shelter from cold winds), and can increase the value of a home by at least 8-10 per cent. Effective landscape design can also add value to municipalities and communities through beautification projects, reducing stormwater runoff, protecting biodiversity and improving public safety and reducing crime. Most people think that "landscape" simply means plants. But consider the many other elements outside of your home: decks or patios, walkways, parking areas, fences, rockeries—all contribute to the way your home presents itself to the world. If any of these elements are chosen without proper care, they can create a variety of problems, from lessening your home's street appeal to releasing toxic chemicals, increasing the likelihood of flooding and polluting the greater environment. Fortunately, you can enhance how your property looks and functions with landscape materials that are safe for both you and the environment. You'll find ecologically superior products in a range of styles, to complement your home and personal tastes.



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*Renovating your home as
well as your landscape?*

See the Green Home

Renovation series for tips.

You'll find them online

at www.vancouver.ca/

sustainability

Rethink Renovation

Green landscaping requires a new approach to the renovation process, with more initial planning to take advantage of opportunities that might be otherwise missed with a conventional approach. This includes expanding your list of objectives as well as the way you compare the price of products—taking wide-angle and long-term views of decisions. It also means being willing to invest time and energy to find solutions that best fit your needs. And finally, it means approaching your project with health and safety as priorities. This advance planning will pay large dividends in terms of long-term satisfaction and cost containment.

Outdoor space expands your living area without the hassle and expense of adding square footage to your home. Requiring no heating or cooling, this “outdoor room” addition is easier on the environment. According to Health Canada, Canadians spend about 90 per cent of their time indoors, where air quality may suffer from mould, dust mites and other microbial contaminants that can build up on floors, carpets, and upholstery. So consider outdoor living an investment in your health, as well as in your home’s value!

Decide What You Want

Planning a landscape renovation can elicit equal parts excitement and terror. Where do you begin? Generally, the more you can stick with the existing landscape’s features, the less you’ll spend on your project. By identifying your priorities and considering options carefully, you can make sure that your landscape material choices meet your goals. Consider the following when determining your landscape project objectives:



Health & Safety

Does the design encourage the use of non-toxic materials and products, for both installation and maintenance? Are materials chosen to reduce the risk of slips and other accidents?

Durability

Will the products stand up to use over time? Are they right for the job at hand? Are they covered by sufficient warranties?

Reduced Maintenance

Will the materials or products result in less work over time? Are they easy to clean and maintain without chemicals or toxic finishes? Do they resist decay and moss without chemicals?

Functionality

Are the materials well suited to their intended purpose? Do they have the necessary qualities for the job? Can they be reused for another task? Do the materials serve multiple functions? For example, can those pavers serve as a walking surface and allow rainwater to safely infiltrate into the subsoil?

Beauty

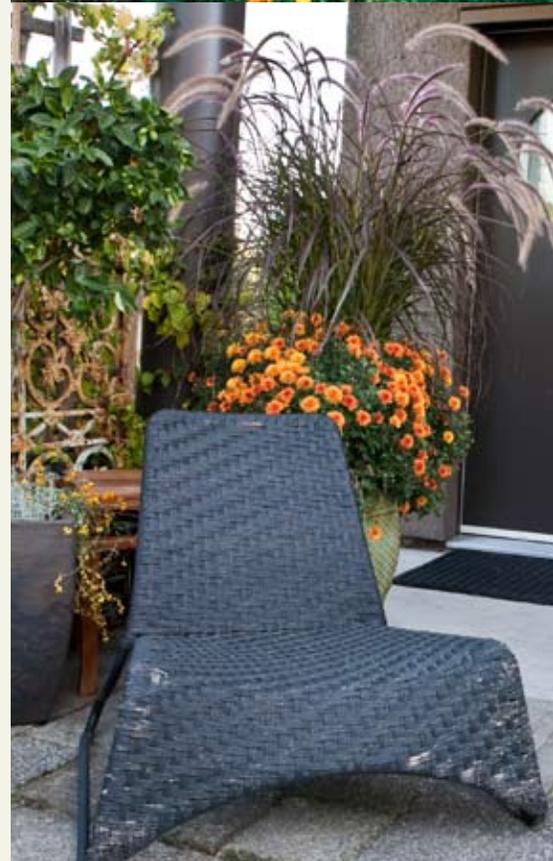
Do the materials appeal to you? Will they stand up to the test of time, aesthetically? Do they enhance nearby elements, including your home?

Accessibility

Do the materials reduce or remove barriers to people with varied abilities, ages and sizes? Do they help orient the user, mark transitions and boundaries, and facilitate the safe, easy passage of wheelchairs or other mobility-assisting devices?

Ecological Benefit

Do the materials enhance and protect the natural environment? Do they help absorb or retain stormwater and protect water quality? Do they help conserve water? Are they free of toxins that can leach into the soil, water, or air? Are they manufactured locally? Do they contain recycled content? Are they readily reusable or recyclable?





Expand Your Definition of Cost

Initial price gives only a peephole view of a product's true cost. A higher purchase price can actually mean a better deal in the long run. This is especially true for landscape materials, which are exposed to extreme conditions—from being driven over to months of rain and even freezing temperatures. Focus on a product's durability and ease of upkeep, not just initial price. That "bargain" now may translate into frequent replacement and costly maintenance down the road.

Consider, too, factors other than monetary savings. A product's price tag rarely includes environmental and social costs. Research can uncover some of these hidden costs, and help you make more informed choices. By asking questions of retailers and avoiding suspect products, you're sending a market signal that these "big picture" costs matter, as well.

Do Your Homework

Research helps you ask retailers, or your designer/contractor, the right questions—or avoid costly mistakes if you are doing the work yourself. Start early to look for businesses that carry the products you like. Keep a file of contact names and businesses, as well as magazine and newspaper clippings. Identify all the materials you'd like to use for your landscape, down to product brands and specific material types. This will help you determine their cost and availability, while avoiding expensive, last-minute decisions. Find out how long it takes to special-order items, and factor in extra time to find salvaged materials, if they are going to be part of your plan. The internet can be a great place to start when searching for information and products—but be aware of biases in information sources. The line between sales pitch and factual information can be quite blurry on the web (and in person, for that matter). You can cross reference your research with information from green building product directories like those available from Metro Vancouver's BuildSmart program and Light House Sustainable Building Centre (www.metrovancouver.org/buildsmart and www.sustainablebuildingcentre.com).

Photo lower left: © Jacqueline Koch. Photo opposite, bottom: Built Green™ Idea Home, designed by Mithun and built by Bennett Homes.



Universal Design Benefits Everyone

Beyond basic accessibility issues, Universal Design creates flexible, adaptable spaces that welcome users of all ages, sizes and abilities. Universal landscape design strategies minimize the risk of injury and help all users enjoy your garden.



Want to learn more?

Go to www.vancouver.ca/sustainability or see Resources on page 20 of this guide.



The Larger Landscape

A landscape is much more than the materials it houses. Before diving into material selection, focus on your overall landscape design and how it functions. Make a thorough assessment by considering everything from soil preparation, plant selection, and watering techniques to how stormwater flows through your property, landscape maintenance and code compliance.

Natural Lawn & Garden Care

Few people realize that almost every landscape decision you make regarding soil conditions, the planting scheme, watering and maintenance practices bears human health, financial, and ecological implications. By choosing a landscape design with plants that thrive naturally in your yard's particular conditions, you'll save time and money—as well as creating an outdoor space that's healthier for your family, pets, wildlife, and environment. For expert tips on creating a naturally trouble-free landscape, turn to the City of Vancouver's *Water Wise Landscape Guidelines*, which provide strategies to create ecologically-based urban landscapes that reduce water consumption and protect water quality (available for download from vancouver.ca/sustainability).

For tips on how to turn your lawn into a garden and even grow your own food, visit *Every Lawn a Garden* at www.everylawnagarden.ca. For help selecting native species including water-wise varieties, visit the native plant directory provided by non profit Evergreen at nativeplants.evergreen.ca. For more urban agriculture tips visit www.cityfarmer.org and *Farm Folk City Folk* at www.ffcf.bc.ca.

Rainwise Landscaping

Especially in rainy Vancouver, it's important to consider how landscape design affects your downhill neighbours, as well as local creeks, lakes, bays and rivers. How do residential landscapes influence water habitat? Hard surfaces shed water, rather than letting it soak into the ground. This allows toxic substances in preservatives, finishes, and some metals to leach into our water, even from landscapes miles from the nearest water body. Vancouver storms can scour creeks of native life, cause flooding, and overwhelm parts of our stormwater management system—resulting in the release of untreated sewage into local water bodies. Luckily, there are ways to reduce or avoid these problems altogether.

Various landscaping techniques help capture, cleanse, and allow rainwater to filter into the soil. These include rain gardens, pervious paving and pathways, downspout dispersion, proper soil preparation with compost, and mulching. Handling rainwater on site reduces the strain on our stormwater management systems and urban creeks. To learn more about rainwise landscaping techniques, see *Resources* on page 20. BC has also launched the *Live Water Smart* campaign with a website that includes resources like the *Water Smart Home Assessment Kit* and a *Water Conservation Calculator*, all available at www.livingwatersmart.ca.

Hardscape Maintenance

Make environmentally friendly maintenance a priority in your new landscape. This includes surfaces that are easy to clean with a broom or brush, and avoiding materials that require repainting or chemical treatment. Selecting naturally rot-resistant and durable materials in the first place makes for easier maintenance down the road.

Code Compliance

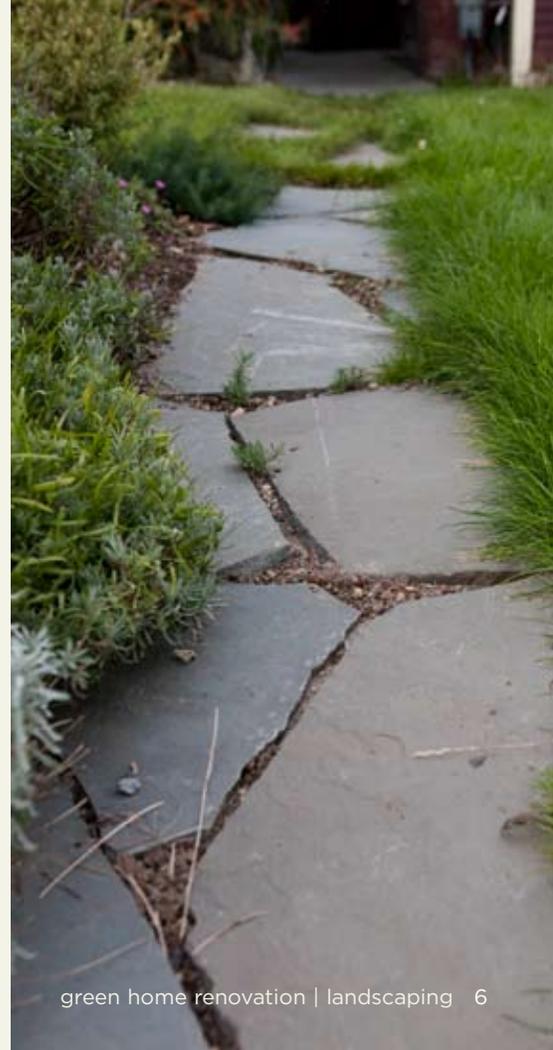
Address any building or land use-related code issues your project may encounter (decks, large sheds and other outbuildings, and retaining walls commonly require permits). Check the *City of Vancouver Building Bylaws* and other regulations, and determine whether your project requires a permit.



Patios, Walkways and Paths

Walkways provide home and garden access. Well-designed walkways create a safe and attractive route of travel. There are many ways to lay a path from Point A to Point B. Salvaged materials make prime candidates for patios and walkways, outlined in the table on pages 7 and 8. Find salvaged materials sources by visiting Metro Vancouver's directory of recycling and salvage businesses at www.MetroVancouverRecycles.org, or Recycling Council of BC's material exchange program at www.vancouver.reuses.com

In order for walkways and patios to last, you must consider much more than their surface materials, however. Especially when designing for rain to percolate into the soil below, the surface—and structure below the surface, including sand, crushed rock, etc.—must be carefully prepared. For some materials, such as *pervious pavers*, professional installation is highly recommended to ensure a long-lasting and properly functioning system.



Questions about natural lawn and garden practices? Visit the City of Vancouver's Grow Natural lawn and garden resources at vancouver.ca/engsvcs/solidwaste/grownatural/.

Patio, Walkway & Path Choices

MATERIAL

DESCRIPTION/TIPS

BENEFITS

DRAWBACKS

Poured Concrete with Fly Ash



Concrete is a mix of Portland cement, sand, and aggregate (gravel). Portland cement is created in an energy-intensive process, in which clay and limestone are mixed and heated to nearly 1480° C, releasing large amounts of carbon dioxide (a greenhouse gas) along with toxic substances such as mercury, lead, and arsenic. Cement, activated by water, binds the concrete mix together, creating a long-lasting surface.

Reduce the negative environmental impact of this landscaping material by using fly ash (a byproduct of coal-fired energy production) for up to 50 per cent of the cement used in the concrete mix.

Tips: Consider poured-in-place concrete only in applications where you're certain it will satisfy long-term functional and aesthetic needs. Pavers and other moveable materials make a better bet for an adaptable landscape design. Using fly ash can increase concrete cure times; consult with a concrete supplier. Concrete mixes can also incorporate recycled products, such as crushed concrete, replacing a portion of the conventional aggregate. Use reusable concrete forms.

- extremely durable even surface good for wheelchair and mobility-impaired accessibility

- extremely energy-intensive to produce (for every tonne of cement produced, approximately one tonne of carbon dioxide is released!)
- impervious surface; increases stormwater runoff
- impossible to reconfigure once poured

Broken Concrete



Broken concrete from demolition projects is commonly available year-round, usually free if you can haul it yourself, or delivered for a fee. Broken concrete can be laid similar to stone or other pavers, to create a flagstone-like path.

Tips: Look for broken concrete from sidewalk and pathway demolition projects so pieces are both light enough to move with relative ease and of roughly the same depth; this helps with laying the pieces.

- extremely durable
- reusable; can be reconfigured
- rainwater can be absorbed between pieces of concrete, reducing runoff

- uneven surface can be difficult for wheelchair travel

Permeable or Salvaged Concrete Pavers



Concrete paving creates impervious surfaces that increase stormwater runoff. Look for interlocking concrete pavers in permeable designs that allow rain to seep between the pavers. Also consider installing conventional salvaged pavers to allow for rain infiltration.

Tips: Salvaged concrete pavers are sometimes available at used building materials retailers or the the Recycling Council of BC MEX program at www.bc.reuses.com (see Resources on page 20). Manufacturers of permeable concrete paving systems recommend professional installation for proper functioning.

- reusable; can be reconfigured
- extremely durable
- can allow water to filter into soil, reducing runoff

- permeable pavers make a difficult do-it-yourself project; most manufacturers require professional installation

Recycled Glass Pavers



Recycled glass is re-melted into forms, creating hefty, translucent pavers; can be laid similar to concrete pavers, or interspersed as accent pieces with traditional stone or concrete products. Due to their recycled content, glass pavers require roughly half the energy necessary to create new, similarly performing concrete pavers.

Tips: Look for locally produced glass pavers to support the market for recycled glass products.

- durable
- up to 100 per cent recycled content
- energy-efficient manufacturing
- locally available
- reusable; can be reconfigured

- uneven surface can be difficult for wheelchair travel

MATERIAL**DESCRIPTION/TIPS****BENEFITS****DRAWBACKS****Salvaged Clay Brick**

Made by forming and drying clay, bricks are then fired in kilns at temperatures up to 1090° C. Brick production is a major source of air pollution in some developing countries, because of wood-fired kilns. Most domestic manufacturers use much cleaner-burning natural gas.

Tips: Salvaged brick is available from used building materials suppliers, salvage yards, online exchanges and newspaper classifieds-or right at home. If not enough salvaged brick is available for your project, look for local, or at least domestic, brick sources.

- reusable; can be reconfigured

- cleaning mortar from salvaged brick is time-consuming

Salvaged Stone

Quarried and fabricated around the world; quarrying practices and transport means create environmental impacts. Salvaged stone eliminates these impacts by reusing materials already produced.

Tips: Look for sources of salvaged stone for least environmental impact. Alternatively, find local sources of stone, and ask about quarrying practices.

- reusable; can be reconfigured

- can be difficult to find amounts of a single stone to finish a larger project

Crushed Quarry

Crushed quarry rock extracted from inland quarries is generally less damaging to the environment than gravel operations, which often disrupt more sensitive land near streams and lakes. Also, nearly 100 per cent of stone from a quarry is used, whereas substantial waste occurs with gravel operations.

Tips: Look for local sources quarried away from lakes and streams. Take care to lay crushed rock properly for stormwater infiltration.

- weed barrier
- absorbs stormwater
- even surface good for wheelchair accessibility

- not recycled

Wood Chips

Chipped on site or available from tree services and landscape materials suppliers, wood chips utilize an urban waste source.

Tips: Arborists and tree services will sometimes drop off chips for free or a small fee; you can also rent wood chippers to make a homemade path.

- recycled content
- resilient surface can reduce risk of injury in falls
- composts over time

- degrades over time; must be replenished

Nutshells

Nut processors generate large volumes of nutshells seasonally. Hazelnuts are regionally produced. Shells are often burned for fuel; using them for mulch and pathways reduces the amount of burning and protects air quality.

Tips: Look for regional sources; mainly from the Fraser Valley. Nut processing occurs October through December; look for them while they're in season.

- recycled content
- effective at controlling weeds
- composts over time

- degrades over time; must be replenished
- availability limited to nut processing season

Tumbled Recycled Glass

Glass bottles from recycling processors are broken and tumbled to create beach-style glass without sharp edges.

Tips: Look for local manufacturers. Tumbled glass is also useful for accent material in pots and water features.

- recycled content
- lasts indefinitely
- reusable
- locally available

- can look messy over time

Mulch Materials

Mulches are a layer of organic material placed around plants to inhibit weed growth, minimize soil erosion and runoff, reduce watering needs by keeping soils moist, and define areas. Several of the same materials useful for paths (such as wood chips and nutshells) make good mulches, as well. While mulch is a landscape material, and therefore included in this guide, it's as important to use mulch correctly as it is to identify the type you'll use. The type of plants you're mulching determine the best material for the job.



Mulch Choices

MATERIAL	DESCRIPTION/TIPS	BENEFITS	DRAWBACKS
Compost 	<p>Yard waste and other organic materials decompose to create a dark, crumbly, earthy material. After used as mulch, compost can be worked into the soil to feed and enhance plants and soil life.</p> <p>Tips: Make your own compost at home, or purchase from local suppliers.</p>	<ul style="list-style-type: none"> recycled content improve soil quality can be produced on site, or ordered from local suppliers 	<ul style="list-style-type: none"> weeds germinate more readily than in finer textured mulches
Leaves 	<p>Fall leaves make excellent mulch, decomposing quickly; a free annual supply is guaranteed.</p> <p>Tips: Shred leaves with a mower, or use them whole. Evergreen leaves take longer to decompose; some leaves, such as Rhododendron, are poisonous.</p>	<ul style="list-style-type: none"> improve soil quality free reduce winter soil erosion insulate plant roots from cold 	<ul style="list-style-type: none"> if left whole, may blow around
Wood Chips 	<p>See description and tips in Patio, Walkway & Path choices on page 8. Do not use chips you suspect came from chemically treated lumber or diseased trees.</p>	<ul style="list-style-type: none"> natural look low cost 	<ul style="list-style-type: none"> may spread weeds and disease
Nutshells 	<p>See description and tips in Patio, Walkway & Path choices on page 8.</p>	<ul style="list-style-type: none"> natural look low cost 	<ul style="list-style-type: none"> hard on bare feet

Compost: More Than Just Mulch

Adding compost when preparing garden, lawn, or plant bed soil encourages healthy plant growth while reducing your landscape's water, fertilizer and pesticide needs. The general rule is to incorporate between one and three inches of compost into the upper eight inches of soil. For information on composting, see the City of Vancouver's Grow Natural web resources at vancouver.ca/ENGsvcs/solidwaste/grownatural/index.htm.

Decks

Inviting outdoor spaces beckon us out of the home and into the fresh air. And why not encourage as much outdoor living as our fickle Northwest weather will permit? However, decks tend to require a lot of work and maintenance. Especially if you're building close to the ground, consider whether a more durable patio of recycled masonry, broken concrete or pavers will work as well. See *Patios, walkways & paths choices* on page 7 for materials ideas. Decks more than 0.6 metres above normal finished grade require permits. See the City of Vancouver website for relevant building bylaws.



Decking Choices

MATERIAL	DESCRIPTION/TIPS	BENEFITS	DRAWBACKS
Wood 	<p>A global commodity, wood is used for everything from decks to raised beds and retaining walls. Landscape-application wood is normally naturally rot-resistant, or treated with preservatives to delay rot. For years, chromated copper arsenate (CCA) was the standard for treating wood in contact with the ground. However, health concerns over these highly toxic compounds have prompted its phase out for residential landscape use. Wood treatments of lower toxicity, such as copper azole (CA-B), are now available, even through major retailers.</p> <p>Tips: Look for naturally rot-resistant species-domestics such as cedar, juniper, and cypress, or highly durable tropical woods like Ipe. Specify wood products stamped and certified by the Forest Stewardship Council (FSC) as responsibly harvested. To discourage moss growth, avoid using wood in heavily shaded areas.</p>	<ul style="list-style-type: none"> • natural material • even surface good for wheelchair and mobility-impaired accessibility • FSC products promote responsible forestry • recyclable or compostable, if untreated 	<ul style="list-style-type: none"> • rots over time • can attract pests like carpenter ants • prone to moss and algae growth • can be slippery • some species require periodic painting or refinishing
Recycled Plastic Lumber and Composite Lumber 	<p>Recycled plastic, usually polyethylene, is re-melted and formed into standard dimensions for decking, railings, and other applications. Composite recycled products mix recycled plastic with sawdust or other wood products. Added pigments create integral colour, eliminating the need for paint. The properties of plastic are such that plastic lumber has limited structural capacity, requiring closer joist spacing on decks, for example. Fibre-reinforced recycled plastic lumber is available.</p> <p>Tips: Inquire about the recycled content of the product, and look for 100 per cent recycled content. Visit www.sustainablebuildingcentre.com for a list of products.</p>	<ul style="list-style-type: none"> • durable • recycled content • very low maintenance • lower long term cost 	<ul style="list-style-type: none"> • products that require closer joist spacing result in additional material • higher initial cost

Deck Joists and Beams

A deck's structural support depends on joists and beams, which are most commonly made of pressure-treated wood. As with treated decking, CA-B is the least toxic current alternative. Also consider *structural recycled plastic*, which uses glass fibre to enhance the structural capacities of recycled plastic timbers. Although substantially more expensive up-front than low-toxic pressure-treated lumber, structural recycled plastic ensures a long-lasting, virtually maintenance-free deck.

Foundations

Most decks rely on pier blocks or poured concrete for foundations. One product that helps reduce cement use in foundation work is the *pin foundation*. Most foundations rely on a substantial *footing*, or subsurface mass of concrete, to distribute the force of the load they support. Pin foundations replace the footing with a series of large steel pipes, which stabilize and carry the load (read more about how they work at www.pinfoundations.com). This eliminates not only the need for a traditional footing, but all the digging and concrete such a footing requires.



When using wood in the landscape, look for wood certified by the Forest Stewardship Council (FSC). FSC certification ensures the wood is responsibly grown and harvested. Go to www.fscscanada.org to learn more.

Fences, Trellises and Arbours

Fences and trellises define landscape spaces, while keeping kids and pets safe. Like any other project, the material you choose should suit the application. See the City of Vancouver publication 'Guide to Residential Fences Including Overheight Fences, Arbours and Trellises', available for download at vancouver.ca. Fences serve multiple purposes-some of which can be achieved without even building a fence! For example, you can create a living screen by planting a row of shrubs, bamboo, or other plants. Herbaceous plants (varieties that die back to the ground in winter) can provide seasonal privacy.



Photo top: Geoff Belau (silo ARCHITECTURE+DESIGN) and Lauren Woodward. Photo opposite, top left: Martha Rose Construction. Photo opposite, top right: © Jacqueline Koch.



Fence, Trellis, and Arbour Choices

MATERIAL	DESCRIPTION/TIPS	BENEFITS	DRAWBACKS
<p>Wood</p> 	<p>See the Decking table on page 10 for description and tips on wood.</p>	<ul style="list-style-type: none"> • See Decking 	<ul style="list-style-type: none"> • See Decking
<p>Recycled Plastic Lumber</p> 	<p>See the Decking table on page 10 for description and tips on recycled plastic lumber.</p> <p>Tips: Some recycled plastic lumber may not be suited to the structural needs of a fence, trellis or arbour. Be sure to choose materials that meet the structural and safety requirements of your project.</p>	<ul style="list-style-type: none"> • See Decking 	<ul style="list-style-type: none"> • may not be structurally sufficient for some applications
<p>Salvaged Metal</p> 	<p>In general, mining and processing metals damages the environment. However, because the steel and aluminum recycling markets are so strong, most of these metals contain some recycled content. Salvaged metals prove environmental favourites because they require no mining, processing, or even the energy used in recycling.</p> <p>Tips: Sheet metal, chain link fencing, metal pipes and rods, and even salvaged railings can be used for fence and trellis applications. Look for salvaged metals at industrial surplus stores and online exchanges, see Resources on page 20.</p>	<ul style="list-style-type: none"> • reused, reusable and recyclable 	<ul style="list-style-type: none"> • sharp edges can cut or puncture • prone to rust or corrosion • galvanized materials can leach zinc, which is toxic to aquatic life
<p>Fibre Cement</p> 	<p>Available in panels and planks, fibre cement is a combination of cement, sand, wood fibre, and sometimes, clay. Like all products containing cement, fibre cement requires large amounts of energy to produce, which contributes to carbon dioxide emissions and global warming. Additionally, the wood fibre used in fibre cement is usually imported. Conventionally used for home siding, fibre cement is growing increasingly popular for fences.</p> <p>Tips: Make sure your fence construction will work with this material. Brittle and easily damaged, fibre cement is best used for areas with low likelihood of a run-in with a wheelbarrow, car bumper, or baseball.</p>	<ul style="list-style-type: none"> • rot-proof • low maintenance • holds paint longer than wood 	<ul style="list-style-type: none"> • easily broken or damaged • currently not recyclable in small quantities • suitable only for fences



*See the native plants
directory from non-profit
Evergreen for help with
choosing the right plants,
nativeplants.evergreen.
ca/, or turn your lawn
into a garden where you
can grow your own food
with tips from Every
Lawn a Garden at [www.
everylawnagarden.ca](http://www.everylawnagarden.ca).*

Rockeries & Raised beds

Rockeries level out landscape slopes, creating more useful space. They can also reduce water use, runoff and erosion by helping water soak into the ground. Held together by their own weight and placement rather than mortar, dry-laid rockeries offer an ideal opportunity to reuse and reconfigure stone or broken concrete. Mortared walls are less easily reused, and if not constructed with proper drainage, can trap water-increasing the risk of wall failure. See the City of Vancouver publication 'Guide to Residential Fences Including Overheight Fences, Arbours and Trellises', available for download at vancouver.ca. You should distinguish rockeries from retaining walls, which provide a retaining function to soils, while rockeries are installed in areas that are primarily self-supporting.

Raised beds utilize Universal Design principles, bringing plants closer to people and allowing those who otherwise might not be able to participate in gardening to get their hands dirty. Raised beds also provide a design feature in the landscape, defining spaces and accentuating transitions.



Rockery & Raised Bed Choices

MATERIAL

DESCRIPTION/TIPS

BENEFITS

DRAWBACKS

Broken Concrete



Described in Patio, Walkway & Path choices on page 7, broken concrete is a common material often available free if you pick it up, or delivered for a fee.

Tips: Look for broken concrete from a single job, such as a driveway or sidewalk demolition (you're likely to see free piles in front yards if you keep an eye out). Chunks of concrete from one source are more likely the same depth and much easier to stack. Find broken concrete through online services and classified ads. Some object to the aesthetics of broken concrete. A stone chisel can give a more natural look to the face broken concrete, and trailing plants can camouflage its surface.

- recycled content
- durable
- reusable

- wide pieces take up a lot of gardening space in raised beds

Wood Timbers



The most common landscape timbers are pressure treated (injected with rot- and insect-inhibiting chemicals under pressure). For years, treatment with chromium copper arsenate was standard (see the Decking table on page 10 for a description of the hazards of this type of wood treatment). Naturally rot-resistant species, such as juniper, can endure ground contact without the application of toxic wood preservatives.

Tips: Look for locally harvested products, preferably with Forest Stewardship Council certification. Avoid creosote-coated landscape timbers and railroad ties, which can leach toxic materials into surrounding soils.

- natural material
- local sources available

- even rot-resistant species eventually rot
- can harbour carpenter ants and termites

Recycled Plastic



Plastic from consumers and the automotive industry is collected, melted, and formed into 4"x4"x8' (10cm x 10cm x 2.5m), 6"x6"x8'(15cm x 15cm x 2.5m) and larger sizes. This rot-proof material can be left in direct contact with soil.

Tips: Look for 100 per cent recycled content. Recycled plastic products are also manufactured locally-look for products made close to home to reduce transportation-related pollution.

- durable
- recycled content

- large dimensions can be difficult to cut

Salvaged Stone



See Patio, Walkway & Path choices on page 7 for a description of salvaged stone.

Tips: Landscapes being renovated or redesigned can be a source of salvaged stone. Online exchanges and classified ads are good places to look.

- natural material
- reused

- can be difficult to find quantities of one kind for a large job

Found Objects

The materials selection tables on the previous pages outline many reused items to incorporate into your landscape, but many others exist, as well. Salvage and found objects add personality and a sense of history to your landscape-while taking some of the burden off local landfills.

Flex your creative muscle by salvaging. A trip to a building materials salvage store or industrial surplus yard can yield ready-made art by the pound, or elements you can assemble into a truly one-of-a-kind landscape feature. Garden art takes endless forms, limited only by your imagination. Best of all, you can find salvaged materials for virtually all types of landscape projects, if you know where to look. The Recycling Council of BC established a free province wide reuse and recycling service in 1985; the RCBC Materials Exchange program is a completely self-served web-based program comprised of Residential Reuses Programs. Visit www.bc.reuses.com.

When using salvaged materials, beware lead-based paints, toxic wood preservatives, and other hazards. Ask questions of the person giving away or selling the material; if in doubt, pass on suspect items. You'll find an abundance of salvaged materials out there so make safety a priority.

Commonly available salvaged materials include:

- Concrete. Described in *Patio, Walkway & Path choices* on page 7, broken concrete can function as a patio, walkway or rockery. Salvage it from your own walkway or patio demolition, or find it in your neighbourhood. Alternatively, demolition companies and concrete recyclers may deliver a load for a fee.
- Stone and brick are described in *Patio, Walkway & Path choices* on page 7, these materials are plentiful, thanks to continual building and landscape renovations. Stone and brick is available at used building materials stores and salvage companies. They're also common materials on King County's Online Materials Exchange.
- Metal. Give your yard texture and function with everything from industrial surplus sheet metal to vintage wrought iron gates. Industrial salvage yards and scrap yards are good sources of metal.
- Architectural elements. Create a landscape focal point with masonry, concrete or terra cotta architectural salvage. These elements tend to be higher-end; find them at building salvage stores and even antique stores.



Photo top left: © Graham Winterbottom.

Photo middle and bottom left: © Jacqueline Koch.



Sheds & Greenhouses

Comprised of many elements, garden sheds define their own category. Store-bought kits make assembly a cinch, but these sheds are usually not constructed of green materials. The small nature of sheds, greenhouses, cold frames and other outbuildings makes them perfect candidates for salvaged materials. In fact, you can reuse an entire shed if you find one available. Look for shed materials on the RCBC Materials Exchange website as well as local classified ads and used building materials stores. Many elements of a shed can be found reused, from sheathing and windows to roofing and dimensional lumber. The only limitation is your imagination—and perhaps your vehicle!

If you're purchasing new wood and/or plywood for your project, consider *Forest Stewardship Council (FSC)* certified wood. This independent organization's stamp of approval signifies wood harvested and processed in an environmentally and socially responsible manner. To ensure you're getting the real thing, look for the logo on the products you're buying. By buying FSC wood products, you support and protect the vitality of our forests.

Be sure to research whether your shed will require a permit, and that it complies with codes for setbacks from neighbouring properties. If you have questions about a structure you're considering for your backyard, visit the City of Vancouver's Permits 101 for Homeowners page at vancouver.ca/commsvcs/developmentsservices/general/permits101.htm.

Conventional foundations and concrete slabs require large amounts of cement, a material that's extremely energy-intensive to produce. See the *Decks* on page 10 for more about *pin foundations*, an alternative to slabs and conventional foundations.

*Look for salvaged
shed and greenhouse
materials on the
RCBC Materials
Exchange website
www.bc.reuses.com.*



Irrigation Systems

Homeowners looking for convenience and cost savings often think an irrigation system will provide both. However, according to the US Irrigation Association, even the most efficient automatic sprinkler systems waste a minimum of 30 per cent of the water they deliver. Without proper maintenance (experts recommend at least annual inspection) systems become even less efficient over time. And any type of irrigation system can be wasteful if the water doesn't get where it's needed (the plant's *root zone*), when it's needed.

The majority of sprinkler irrigation systems in BC are connected to a potable (safe for drinking) water supply via a maze of pipes, valves, and sprinkler heads, referred to as a cross connection. Herbicides, pesticides, fertilizers, or animal feces may collect around the sprinkler heads creating a potential for the contaminants to be drawn back through the system into the potable water supply unless appropriate cross connection controls are in place. BC codes require the use of backflow preventers to avoid contamination – visit the City of Vancouver's Cross Connection Program for more information vancouver.ca/engsvcs/watersewers/water/quality/crosscontam.htm. If you decide to purchase an automatic in-ground system, use a certified irrigation designer and contractor to design, install, and maintain it for maximum efficiency. You can search the directory of professionals of the BC Landscape and Nursery Association at www.bclna.com and the BC Society of Landscape Architects at www.bcsla.org.



It's possible to design a landscape to minimize the need for regular supplemental watering once it is established. Weigh your priorities (economic, environmental, and personal) and consider landscape designs and plant choices that eliminate the need for an automatic, in-ground irrigation system. Look to the Native Plant directory from the local non-profit Evergreen for tips on selecting water-wise plants, nativeplants.evergreen.ca and see the Lawn Care Tips at the City of Vancouver's Grow Natural web resources page vancouver.ca/engsvcs/solidwaste/grownatural/. Also, The City of Vancouver's Water Wise Landscape Guidelines, found at vancouver.ca/commsvcs/guidelines/W005.pdf, offer principles and strategies for making smart use of water in your landscaping.

Outdoor water saver kits are available from the City of Vancouver for a subsidized price of \$12 – visit vancouver.ca/engsvcs/watersewers/water/conservation/programs/kits.htm for more details.

Permanent In-Ground Irrigation Systems

Pipe Materials. In-ground irrigation systems commonly rely on pipe made from *polyvinyl chloride* or PVC. Recent research raises questions about vinyl's impact on human health and environmental safety. *Polyethylene* is an increasingly available PVC alternative used in the irrigation and plumbing industry.

Irrigation Controllers. Also called *clocks* or *timers*, these devices control the time an irrigation system operates and the amount of water it uses. The most efficient controllers automatically adjust to changing plant water needs. Visit the City of Vancouver's Water and Sewers Department to learn more about outdoor water savings kits and water conservation programs at vancouver.ca/sustainability/building_watersewer.htm.

Soaker Hoses

These hoses look like a black garden hose, but are made of a porous material and are capped at the end, allowing the water to slowly leak into the soil along the entire length of the hose. When used correctly, soaker hoses are an efficient way to water, and reduce the incidence of plant disease too. Many soaker hoses are made from recycled plastic.

Garden Hoses

Most garden hoses are made from various forms of plastic, including PVC. Reinforced rubber hoses are generally considered the most durable option. (Although they tend to be heavier and more awkward than their PVC cousins.) Many hoses also contain recycled content plastic, an environmental plus. No matter what material your hose is made of, avoid drinking from a garden hose. Hoses can siphon contaminants from standing water or breed bacteria within a warm hose, along with leaching chemicals from the hose itself.





Rainwater Harvest

We spend so much time getting water away from our homes that we often fail to see rain as a valuable asset—delivered right to us for free. Excessive amounts of rainwater diverted into storm or sewer systems can damage local creeks, cause flooding, and impair water quality. But what if you could use that water to benefit your home or garden? You can—in a multitude of ways.

Roof rainwater can be stored for later use outdoors in the yard. Rain barrels are popular, and the City of Vancouver will subsidize 50 per cent of the cost for Vancouver residents – see vancouver.ca/engsvcs/watersewers/water/conservation/programs/rainbarrel.htm.

Cisterns are large tanks (commonly plastic, but also concrete and fiberglass) commonly used in agriculture to store large quantities of liquids, and are available locally through industrial pipe suppliers and farmers' co-ops. Cisterns store from several hundred to thousands of gallons of water, enough to significantly reduce or even eliminate the need to use municipal water for landscape purposes, especially when combined with the use of water-wise plants. Cisterns can offer the added benefit of helping regulate stormwater runoff during the winter months, when landscape water isn't needed. By incorporating a valve in the base of the tank, rainwater captured during the winter can slowly and safely drain from the tank over time. To store water for summer use, simply close the valve. The Islands Trust Fund provides information on rainwater harvesting at www.islandstrustfund.bc.ca/projects/rainwater.cfm

You can also put that roof water directly to use in your yard with a rain garden. These landscape elements feature plants that thrive in wet conditions coupled with soils that allow safe ground percolation. Rain gardens must be carefully designed and located to avoid flooding and causing damage to your home or neighbouring properties. For more on rain gardens, rainwater harvest products and service providers, visit MetroVancouver's BuildSmart directory at www.metrovancouver.org/buildsmart, as well as Light House Sustainable Building Centre at www.sustainablebuildingcentre.com.

Find site-specific treatments to help reduce potable water consumption while maintaining a quality landscape in The City of Vancouver's Water Wise Landscape Guidelines. Visit vancouver.ca/commsvcs/guidelines/W005.pdf

Accessories

Let your creativity reign when it comes to landscape accessories. Fortunately, you can find a green alternative for almost any design element. As a general rule, keep things simple. You'll have less to buy, maintain, and deal with in the long run. Common landscape accessories include lawn and patio furniture, pots and planters, and lighting.

Furniture

Lawn and patio furniture comes in all shapes and sizes. In addition to aesthetics and durability, focus on environmental performance. If possible, outdoor furniture should be stored in a dry location for the winter. If not, make rot-resistance a priority. Green material choices for outdoor furniture include naturally rot-resistant, responsibly harvested wood certified by the FSC (see page 11), as well as recycled-content plastic.

Rot-resistant wood is a good option for outdoors, but many species of wood are over-harvested—especially many tropical hardwoods known for their durability, such as teak. Other species with similar rot resistance, such as eucalyptus, are available with FSC certification.

Another popular material for outdoor use? Plastic, especially *polyvinyl chloride* (PVC). Debate continues, however, on the human and environmental effects of PVC production and disposal. Moreover, recycling opportunities for PVC consumer products are essentially nonexistent at this time. PVC-free alternatives exist, however, including a wide variety of outdoor furniture with recycled content, which makes use of materials otherwise destined for the landfill.

Pots and Planters

Add flexibility and seasonal colour to the landscape with pots and planters. Best of all, it's easy to be environmentally responsible with these design elements. You can find planters fabricated from a wide variety of materials, including materials suitable for decking; see the *Decks* on page 10. For a directory of green building products, visit MetroVancouver's BuildSmart directory at www.metrovancouver.org/buildsmart, as well as Light House Sustainable Building Centre at www.sustainablebuildingcentre.com.

Lighting

Improve the safety and security of your landscape with outdoor lighting. However, excessive landscape lighting can waste energy and result in light pollution, disrupting neighbours and reducing the ability to see nighttime stars. A careful lighting scheme reduces light pollution while providing just enough light for safety and security. The Royal Astronomical Society of Canada provides background information on light pollution and Dark Sky Guidelines for light pollution abatement – visit www.rasc.ca/lpa/guidelines.shtml for more information. *Low-voltage* outdoor lighting systems usually consume less energy and are safer to operate than lighting operating on regular household current.

Avoid increased energy costs related to outdoor lighting, as well as the expense of hardwiring conventional outdoor lights, with solar lighting. Available in many styles, solar-powered landscape lights store energy accumulated during the day in batteries, and then provide low-level light at night. In general, solar garden lights provide a limited amount of light—enough to mark a trail but not enough to illuminate activities.



Resources

Landscape Design

- City of Vancouver publication 'Guide to Residential Fences Including Overheight Fences, Arbours and Trellises', available for download at vancouver.ca
- Green Living Online's landscaping resources for more on landscaping and maintenance at www.greenlivingonline.com/guide/Vancouver/158
- City of Vancouver's Grow Natural web resources at vancouver.ca/ENGsvcs/solidwaste/grownatural/composters.htm
- Turn every lawn into a garden and grow your own food with tips from www.everylawnagarden.ca and www.ffcf.bc.ca
- Select water-wise plants at nativeplants.evergreen.ca
- The Royal Astronomical Society of Canada provides background information on light pollution and Dark Sky Guidelines for light pollution abatement – visit www.rasc.ca/lpa/guidelines.shtml for more information.

Material Selection

For a directory of local green building products and service providers, see MetroVancouver's BuildSmart at www.metrovancouver.org/buildsmart, as well as Light House Sustainable Building Centre at www.sustainablebuildingcentre.com.

Salvage and Reuse

Metro Vancouver provides a directory of recycling and salvage businesses at www.MetroVancouverRecycles.org There is also more information about recycling available from the Recycling Council of BC at rbc.bc.ca.

Water Efficiency and Conservation

- The City of Vancouver provides residents with indoor and outdoor Water Saver Kits and rain barrels at a subsidized cost: vancouver.ca/sustainability/building_watersewer.htm
- The City of Vancouver also offers strategies for the design, implementation, and maintenance of landscapes for varying scales in their Water Wise Landscape Guidelines: vancouver.ca/commsvcs/guidelines/W005.pdf
- Visit the VanDusen Botanical Garden's conservation educational resources at vancouver.ca/parks/parks/vandusen/website/conservation/intro.htm
- Live Water Smart BC resources including a Water Smart Home Assessment Kit available at www.livingwatersmart.ca and a Water Conservation Calculator at waterconservationcalculator.ca.
- Waterbucket, www.waterbucket.ca, provides resources on water conservation and use in BC.





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