

DEMOLITION, LAND CLEARING & CONSTRUCTION

DLC Waste Management Toolkit

A GUIDE FOR THE BUILDING CONSTRUCTION INDUSTRY



metro
vancouver



BUILDSMART

www.metrovancouver.org

In this toolkit

Metro Vancouver provides utility services on behalf of the region's 2.3 million residents. Those services include: managing the region's more than three million tonnes of solid waste. A current priority in waste management is to reduce the amount of waste generated, then to recover materials and energy whenever possible.

For more information on waste reduction, waste planning, public facilities and regulations, visit our website at www.metrovancouver.org.

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www.metrovancouver.org/buildsmart

Introduction

Who is this toolkit for?

This Demolition, Land Clearing and Construction (DLC) Waste Toolkit is a reference guide for contractors, design professionals and building owners, to help them maximize the amount of construction and demolition waste diverted from disposal through salvage, reuse and recycling.

This toolkit is developed by Metro Vancouver's Sustainable Business Services as part of its BuildSmart program.

For further information contact

Sustainable Business Services:

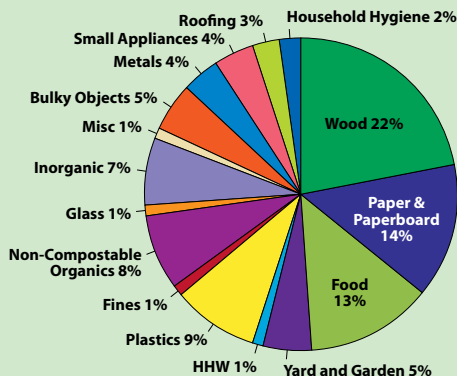
Phone: 604-451-6575

Email: buildsmart@metrovancover.org

Website: www.metrovancover.org/buildsmart

Metro Vancouver Waste

Waste from the construction, demolition and renovation sectors constitutes about one third of the region's waste. Wood waste alone accounts for 22% of the waste disposed from residents and businesses. More than half of the construction and demolition related wastes are readily recyclable and do not need to go to disposal.



5 Five Great Reasons to Set Up a Construction Waste Management Program

Besides making a measurable difference in the amount of material being sent to a landfill there are other reasons for setting up a construction waste management program:

1. Compliance

The following materials are banned from landfills and other waste disposal facilities in Metro Vancouver:

- Corrugated cardboard
- Newsprint
- Office paper
- Blue box recyclables (including glass, metal and plastic Type 1, 2, 4 & 5 containers)
- Yard trimmings
- Gypsum drywall
- Electronic waste (personal computers, printers and TVs)
- Refundable beverage containers (all except milk cartons)
- Paint, solvents, flammable liquids, gasoline and pesticides
- Oil, oil filters and empty oil containers
- Lead-acid (car) batteries
- Medications/pharmaceuticals
- Tires

A surcharge of 50% will be applied to the tipping fee for waste loads delivered to Metro Vancouver transfer stations and disposal facilities found to contain 5% or more by volume of one or more of the banned materials.

What is the **zerowaste** ? CHALLENGE

In 2007, Metro Vancouver established the Zero Waste Challenge as part of the region's Solid Waste Management Plan to help increase the waste diversion rate from 52% to 70%.

The core goals of the Zero Waste challenge are:

- Minimize the generation of waste in the region
- Maximize reuse, recycling and energy recovery from solid waste

In addition to materials banned from disposal at Metro Vancouver and other local disposal facilities, a number of other materials have been restricted from disposal. A list of restricted materials at the City of Vancouver and Ecowaste (private) landfills and Metro Vancouver facilities is identified on pages 54 and 55.

Details available by contacting:

City of Vancouver landfill

Phone: 604-326-4600

www.vancouver.ca/engsvcs/solidwaste/landfill/index.htm

Ecowaste landfill

Phone: gatehouse 604-277-1410 or office 604-276-9511

www.ecowaste.com

Contractors must comply with the BC Hazardous Waste Regulation www.qp.gov.bc.ca/statreg/reg/E/EnvMgmt/EnvMgmt63_88/63_88_00.htm and Environmental Management Act www.qp.gov.bc.ca/statreg/stat/e/03053_00.htm and all other applicable laws and regulations.

Any hazardous or banned materials must be identified, properly removed, and disposed of by qualified persons prior to any salvage or demolition work.

Some examples of hazardous materials commonly found in building demolition projects include:

- Asbestos
- Underground storage tanks
- PCBs
- Abandoned chemicals such as solvents, paints, pesticides and gasoline
- Mercury switches

2. Reduced costs

Tipping fees for separated recyclables are considerably lower than mixed waste loads. Recycling cardboard and scrap metal should generate revenue. Over the course of a project these savings make good business sense for doing the right thing.

3. Marketing opportunity

Achieving high construction waste diversion rates provides a distinct marketing advantage for companies, as a growing number of customers are looking for contractors using environmentally responsible practices.

4. Certification

If your building project is seeking certification under a green building rating systems (see examples below), implementing an effective construction waste management plan is key.

Leadership in Energy and Environmental Design (LEED®) for New Construction awards – www.cagbc.org/leed/what/index.php

- Up to 3 points for reusing existing structures on-site
- Up to 2 points for diverting between 50% and 75% of demolition, land clearing and/or construction waste from the landfill and redirecting recyclables back to the manufacturing process and reusable materials to appropriate sites
- Up to 2 points for using 5% - 10% salvaged or reused building materials

BuiltGreen™ residential green building rating system awards – www.builtgreencanada.ca/

- More than 27 points are available for waste reduction initiatives on single family residential construction sites; a minimum of 7 points are required as part of the BuiltGreen™ designation
- Up to 4 points for reusing an existing structure
- Up to 16 points for waste reduction initiatives on single family residential construction sites
- 1 point for every salvaged building product used on the project

BOMA Go Green – www.bomagogreen.com/

- One of the program requirements under Waste Reduction and Recycling is to have a written policy on how building management intends to reduce construction waste sent to landfills

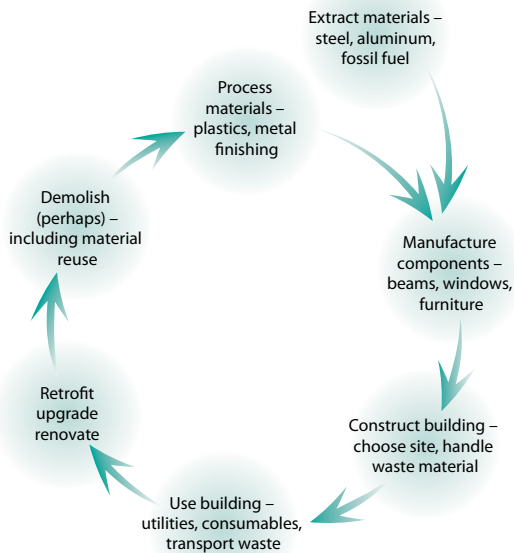
Some municipalities are implementing mandatory green building practices and/or compulsory construction waste management on job sites.



5. Reduced impact on the environment

Through waste reduction and more efficient use of resources, you will be reducing the impact from your project on the environment by:

- Conserving natural resources
- Reducing consumption of energy and water and creating less air pollution, green house gases and solid waste when extracting, transporting and manufacturing virgin materials.



DECONSTRUCTION AND SALVAGE



Deconstruction and Salvage

Demolishing existing buildings by knocking them down and sending waste to landfill is no longer the most cost-effective and environmentally responsible option.

If your site has an existing structure that is slated for demolition, consider the following options:



Photo courtesy Nickel Bros. House Moving Ltd.

Selling or donating the structure for reuse at another location

If a building is at the end of its useful life, because it is no longer needed at the site it sits on, it could still be structurally sound and used on another site.

Deconstructing the building

Deconstruction is “construction in reverse”; it is the process of removing a building by selective disassembly of structural and non-structural building components. This process can yield a significant amount of valuable, reusable building materials.

Salvaging building materials for reuse in new construction

If the building is not to be deconstructed, you can still salvage valuable non-structural building components prior to demolition. This can include appliances, doors, hardwood flooring, light fixtures, siding, etc.

The following is a list of materials that can be salvaged for reuse and/or recycled from buildings slated for demolition:

Examples of Salvageable Building Materials	Examples of Recyclable Demolition Materials
Dimensional lumber	Structural concrete
Heavy timbers	Cinder blocks
Steel beams & studs	Asphalt pavement
Wainscoting	Dimensional lumber
Insulation	Metal piping
Siding	Gypsum wallboard
Heating ducts	Electrical cable
Electrical equipment	Aluminium siding
Brick & block	Metal window frames
Light fixtures	Rebar
Plumbing fittings	Cement based stucco
Faucets	Metal deck railings
Interior doors & frames	

Case Study – Township of Langley Civic Facility

The Township of Langley expanded and converted an existing three storey office building over ground floor parking to provide new municipal offices for Township of Langley staff, council chambers, recreation centre, library, and community police office.

The project involved reusing most of the existing building, carefully deconstructing the renovated areas, reusing a number of the materials on site (including insulation), and diverting 80 per cent of materials from going to landfill (see graph below).

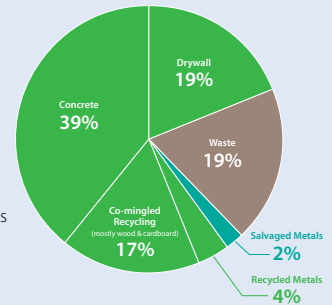
The project also involved strategic material selection, including use of 12% of materials with high levels of recycled content (by value), and use of 21% of materials that were manufactured locally.



Formwork plywood and dimensional lumber stacked for recycling

Solid waste diversion 19% Waste

- 79% Recyclables
 - 39% Concrete
 - 19% Drywall
 - 17% Commingled Recyclables
 - 4% Metals
- 2% Salvaged Materials



Township of Langley Photos: Hughes Condon Marler Architects

Recommended steps for salvage, reuse and recycling

The following steps are recommended to successfully reuse, salvage and recycle building structures:

1. Start planning for deconstruction early

Deconstruction is more labour-intensive than conventional demolition. Allowing salvage contractors the necessary time to deconstruct will result in more materials being salvaged and recycled. This reduces disposal costs and increases revenues from the sale of salvaged materials.

2. Consult a contractor

Consult a demolition and salvage contractor experienced in salvaging structural and non-structural building materials. Ensure that the contractor is professionally qualified, bonded and/or insured. Consult the Directory section on page 25 for a listing of demolition and salvage contractors.

3. Conduct an on-site audit to identify salvage and recycling opportunities

A team consisting of the owner, architect, general contractor and salvage and recycling specialist should survey the building for materials that can be salvaged and recycled. The amount and type of materials salvaged and recycled depends on:

- The time available to the contractor to do the work
- The type and size of building to be taken down
- The condition of the building
- The existing markets for the materials

4. Create a Deconstruction Plan

Ask your deconstruction contractor to draw up a plan specifying the work to be done, including:

- Assessment and abatement of hazardous and banned materials (see table below)
- Type and number of materials to be salvaged for reuse
- Quantities or volumes of materials to be separated for recycling
- On-site procedures for separating recyclables from other waste materials
- Site setup if materials are recycled on site
- Quantities or volumes of waste to be disposed of
- Name and address of used building materials yards, licensed recycling and disposal facilities accepting the materials generated by your project.

Hazardous materials typically found in buildings	Possible Source
Asbestos	Siding, pipe insulation, pipe tape, ceiling tile, drywall joint compound, vinyl sheet flooring, vinyl tiles, lag pipe, insulation asbestos board and linoleum
Underground Storage Tanks	Fuel tanks for heating/cooling systems. Look for fill and vent pipes. Should a tank be found during excavation, then work must cease until the tank, its contents and contaminated soils are remediated or removed as required
PCBs	Fluorescent lighting ballasts, power transformers, generators and other power supply and management equipment
Abandoned Chemicals	Paint, solvents, oils, cleaning products, flammable and combustible substances like gasoline, pesticides, herbicides, and medications
Others	Other hazardous materials may include Freon from cooling equipment and mercury switches

Source: City of Vancouver

For a listing of companies that test for, remove and properly dispose of hazardous materials ask your demolition or salvage contractor or check your phone book under Asbestos Abatement & Removal, Oil Tank Removal, Environmental Consultants & Services



Proper removal and disposal of hazardous materials are crucial for the health and safety of your workers, the community and environment. Ensure a hazardous materials survey is completed by a qualified professional prior to the start of any renovation or deconstruction work. For more information go to www2.worksafebc.com/Portals/Construction/HazardousMaterials.asp.

5. Monitor progress

Monitor the salvaging and recycling activities on an ongoing basis to ensure materials are salvaged, recycled and disposed of as specified. Make sure you keep a record of disposal receipts and credits from the sale of materials.

6. Evaluate your project to determine the outcome

Ask your demolition and salvage contractor to provide you with the following information:

- List and quantity of materials salvaged, recycled and disposed of
- The name and location of the recycling and disposal facilities
- A copy of receipts from recycling and disposal facilities and from material sales

CONSTRUCTION WASTE MANAGEMENT



Construction Waste Management

Construction of a New Building, Renovation or Expansion

These are the steps to take to set up a construction waste management (waste diversion and recycling) program:

STEP 1

Estimate your waste and recyclables

Based on the type and size of your project, estimate the type and quantity of waste materials that will be generated on site, using either waste disposal records from similar previous projects or the *Demolition, New Construction and Renovation Projects Waste Generation Rates* table on page 53.

STEP 2

Choose a recycling program that best fits your site

Decide what type of collection is appropriate for your site, and identify your hauling options.

Collection Options

Source separation is when recyclables such as clean wood, cardboard and scrap metal, are separated on-site and either put into separate bins, a dual (or multi) compartment bin, or stored in piles on the site. The bins are transported to recycling facilities by your contracted waste hauler or site workers.



Source separation

Commingled collection

is when recyclable materials such as clean wood, cardboard and scrap metal are collected in one bin and taken to a recycling facility for sorting.



Commingled collection

Comparison of Source Separation and Commingled Recycling

	Pros	Cons
Source separation	<ul style="list-style-type: none"> • Lower tipping fees at recycling facilities • Revenue generation for recyclables such as cardboard and scrap metal • Higher recycling rates and more accurate account of each material recycled 	<ul style="list-style-type: none"> • Multiple bins on-site • More sorting required
Commingled collection	<ul style="list-style-type: none"> • Fewer bins required – good for sites with space constraints • Less sorting required 	<ul style="list-style-type: none"> • Lower recycling rates • Higher tipping fees at recycling facilities

Options for Space-Constrained Sites

Small sites can target materials at certain phases of construction.

For example, place a dedicated wood bin on site during the framing stage to collect the majority of the wood; and for the remainder of project use a commingled bin that includes collection of wood.

Request a “Front-end Bin” (instead of a “Roll-off Bin”) from your waste hauler.

These can vary in size from 2 to 8 cubic yards. Front-end bins take up much less space than the more regularly used 40 yard waste containers.

Consider using a front-end bin to recycle office paper from the site office or cardboard.

Note: For offsite storage of construction bins permits are required in most municipalities (i.e. temporary storage on City streets and lanes).



Roll-off container

Recycling can represent cost savings in excess of 50%. Make sure recyclable materials are separated properly; otherwise the recycling depot may reject the materials or charge you more.

Hauling Options

Contracting Hauling Services

Contracting a hauler to pick up recyclables generated on your site is the most convenient option. Most haulers can recommend the number and size of bins you will require, and might help you set up a job site recycling program.

Ask the following questions when looking for a hauler:

- What recyclable materials do you pick up?
- What are your requirements for separating recyclable materials?
- Do you provide commingled recyclable collection?
- How much contamination is acceptable for different waste streams?
- What type and size of bins do you offer?
- Does your company provide help on how to set up job site recycling and help educate the workers?
- Do you supply signs for recycling bins?
- Can you provide the itemized waybills and invoices which document the type and quantity of materials recycled, and where?

Approximate Hauling and Disposal Fees for Metro Vancouver (2007)

Type of waste	Cost (per 40 cubic yard bin)
Commingled recyclables*	\$300 - \$400
Wood	\$300 - \$400
Concrete/Asphalt	\$325 - \$450 (per 10 cu. yd. bin)
Garbage	\$550 - \$650

*Wood, metals and cardboard

Self-Hauling

Using company workers and trucks to collect and haul recyclable materials works best on smaller sites. Self hauling can reduce your costs and allow you to take advantage of lower fees—or in some cases, no fees—at recycling depots.

Approximate Recycling Fees at Metro Vancouver Area Facilities

Type of waste	Tipping Fee*	Revenue*
Wood waste	\$14 - \$40	
Cardboard		\$70 - \$90
Scrap metal (ferrous only)**		\$60 - \$120
Commingled recyclables	\$40	
Construction waste disposal	\$48 - \$69	

*per metric tonne

**prices for non-ferrous metals vary by type of metal and amount

STEP 3

Create a Waste Management Plan

The waste management plan is a document that contains all the information needed by any worker on site to be able to achieve the project's waste diversion goals and targets. For more information see *Construction Waste Management Plan* on page 51.

STEP 4

Organize your recycling program

Designate a person who will be responsible for implementing the program and monitoring the site; for larger projects, this could be a waste management team.

This designated person will be responsible for:

Setup of the program on-site

- Be sure to locate recycling bins close to where materials are generated.
- Place recycling bins and garbage bins next to each other to prevent garbage, especially food waste, from ending up in recycling bins.

Note to contractors

Food waste and disposable food containers should NOT go in construction waste recycling bins. Construction waste loads contaminated with food waste may have a surcharge applied to them when received at recycling depots. Ensure small garbage bins are placed throughout the site for collection of food waste.

Use proper signage

- Use large, removable, weatherproof signs for all bins, which clearly show what belongs in each bin
- Post lists of what can and cannot be recycled in visible locations around the site

Educate all workers including subcontractors

- Workers are vital to the success of any recycling program. Communicate the importance of a job site construction waste management program to the company and the success of the project
- Use weekly site meetings to introduce the program and inform workers which materials to recycle, how to separate them, and where bins are located

Prevent contamination and monitor the program

- Inspect bins on a regular basis to identify contamination problems
- Remove contaminants from bins
- Schedule bin pick-up with haulers
- Consider using bins with lids or added security (fencing/locks) to avoid contamination or scavenging

Record keeping and reporting

- Collect and file recycling and disposal waybills and invoices for tracking volumes and costs

Where to take it?

See the directories in the following section for a list of salvage contractors, structural moving companies, local recycling depots and waste haulers.

The following is a list of construction and demolition waste materials that can be recycled in Metro Vancouver.

Construction Waste Material	Includes	Reuse or Recycling Method
Existing vegetation	Shrubs, small trees, plants and sod	Replant on another site or on the same site at the landscaping stage
Landclearing debris	Stumps, branches, green waste	Can be chipped on site and used for mulch, or hauled to a recycling facility
Concrete/Asphalt/Aggregates	Structural concrete, cinder blocks, asphalt pavement, bricks, washout from mixer trucks	Crush on site and use as fill material or recycle
Wood	Forming lumber	Reuse on next project, sell or recycle
	Dimensional lumber off cuts, 2X4	Reuse on site or recycle
	Painted wood, composite	Reuse on site or recycle
	Pallets	Reuse or recycle if damaged (nails okay)
Gypsum	Gypsum wallboard off cuts	Recycle
Paper	Cardboard from packaging, office paper, newspaper	Recycle
Metals	Piping, aluminum siding, banding, wires, cable, rebar	Recycle
Beverage and food containers	Plastic, metal and glass bottles and containers	Recycle
Plastics	Empty pails and containers, plastic film, pipes	Recycle

Check our website for the most current information at:

www.metrovancouver.org/buildsmart

DIRECTORY



Check our website for the most current information at:
www.metrovancouver.org/buildsmart

Directory of Deconstruction and Salvage Contractors and Used Building Materials Suppliers

Please call the listed companies for details on services and pricing.

	Deconstruction Services	Salvage Services	Used Building Materials Yard	Residential (R) or Commercial (C)	Comments
3R Demolition 5735 Beresford Street Burnaby www.3rdemolition.com 604-435-2555	◆	◆		Both	Online listing of available materials
Ace Demolition 20366 Wharf Street Maple Ridge www.acedemolitionsolutions.ca 604-780-4702	◆	◆		C	
Assertive Excavating and Demolition 264 - 19567 Fraser Hwy Surrey www.assertiveexcavating.com 604-888-6055	◆	◆		Both	
B-Line Appliance Recycling 776 Kingsway Vancouver 604-879-4050		◆	◆	Both	Rebuild, resell and recycle used appliances.
Bent Nail New & Used Building Supplies 31255 Wheel Avenue Abbotsford www.bentnail.org 1-877-850-2691	◆	◆	◆	Both	
Chilliwack New & Used Building Materials Inc. 44720 Yale Road West Chilliwack 1-604-792-7322		◆	◆	Both	

	Deconstruction Services	Salvage Services	Used Building Materials Yard	Residential (R) or Commercial (C)	Comments
D. Litchfield Demolition & Used Building Materials 3046 Westwood Street Port Coquitlam www.dlitchfield.com 604-464-7525	◆	◆		Both	Provide onsite aggregate recycling services. Contact company for a list of available materials.
Demco Disposal Service Ltd. 7987 Gilley Avenue Burnaby www.demolishers.com 604-433-5387	◆	◆		C	Online listing of available materials
Douglas Anthony Demolition Ltd. 2 - 1790 Kingsway Avenue Port Coquitlam www.dademolition.ca 604-433-5387	◆	◆		Both	
Fraser Trucking & Tractor Ltd. 9425 - 127 A Street Surrey 604-861-6087	◆	◆		Both	
Habitat for Humanity Abbotsford ReStore 12 - 34220 South Fraser Way Abbotsford www.vancouverhabitat.bc.ca 604-557-1020			◆	Both	
Habitat for Humanity Burnaby ReStore 2475 Douglas Road Burnaby www.vancouverhabitat.bc.ca 604-293-1898			◆	Both	
Habitat for Humanity Vancouver ReStore 69 West 69th Avenue Vancouver www.vancouverhabitat.bc.ca 604-326-3055			◆	Both	

	Deconstruction Services	Salvage Services	Used Building Materials Yard	Residential (R) or Commercial (C)	Comments
Impact Demolition 11-970 Westwood Street Coquitlam 604-552-0202		◆	◆		
Jack's New and Used 4912 Still Creek Avenue Burnaby 604-299-2967		◆	◆	Both	
Johnston & McKinnon Demolitions (1981) Ltd. 6038 Trapp Avenue Burnaby 604-526-0787	◆			C	
Mike's Marine Services 3871 River Road West Delta 604-946-9747		◆	◆	Both	
Pacific Labour & Demolition 6498 Marine Drive Burnaby www.pacificlabour.com 604-529-1011	◆	◆		Both	
Surrey New & Used Building Materials 17861 - 64th Avenue Surrey www.surreynewandused.com 604-576-8488		◆	◆	Both	
The Glass Station 1161 Kingsway Avenue Port Coquitlam www.glassstation.ca/recycling.htm 604-552-3738		◆	◆	Both	Only windows
Vancouver Timber Services Ltd. 225 Schoolhouse Street Coquitlam 604-202-1032					Specializes in reclaimed timber, wood flooring, and furniture.
Western Reclaimed Timber Corp. 11110 - 284th Street Maple Ridge www.westernreclaimed.com 604-462-8845	◆	◆	◆	Both	Specializes in reclaimed timber, wood flooring, and furniture.

Directory of Local Recycling Depots

These local public and private recycling depots are open to builders and demolition contractors. Depots will only accept separated recyclable materials unless indicated otherwise. Please always call ahead for drop-off details and hours of operation.

	Concrete & Asphalt	Cardboard	Drywall	Land Clearing Debris	Pallets
Abbotsford					
Abbotsford Community Services Recycling 33670 Valley Road www.abbotsfordcommunityservices.com/Recycling.htm 604-850-3551		◆			
Columbia Lafarge 28371 Huntingdon Road www.lafarge-na.com 604-856-7794	◆				
Matsqui Transfer Station 33621 Valley Road www.metrovancouver.org/services/solidwaste/disposal/Pages/disposalfacilities.aspx 604-853-7560			◆		
Regional Recycling 750 Riverside Road www.regionalrecycling.ca/abbotsford.html 604-852-9152		◆			
Waste Services Inc. 34321 Industrial Way www.wasteservicesinc.com 604-857-1990	◆	◆	◆	◆	◆
Burnaby					
ABC Recycling 8081 Meadow Avenue www.abcrecycling.com 604-522-9727					
Burnaby Recycling Depot 4800 Still Creek www.city.burnaby.bc.ca/cityhall/departments/engnrm/engnrm_snttnr.html 604-294-7972		◆			

Scrap Metal	Wood	Mixed Construction Waste	Green Waste	Residential and/or Commercial Loads	Comments
◆				R	
				C	
◆	◆		◆	Both	
◆				Both	
◆	◆	◆	◆	Both	
Burnaby					
◆				Both	
◆			◆	Both	Truckloads are accepted depending on space available

	Concrete & Asphalt	Cardboard	Drywall	Land Clearing Debris	Pallets
Coquitlam					
Columbia Lafarge 2300 Rogers Avenue www.lafarge-na.com 604-521-8811	◆				
Coquitlam Construction Recycling Facility 1001 United Boulevard www.metrovancouver.org/ services/solidwaste/disposal/ Pages/disposalfacilities.aspx 604-526-6570					◆
Coquitlam Transfer Station 1200 United Boulevard www.metrovancouver.org/ services/solidwaste/disposal/ Pages/disposalfacilities.aspx 604-521-1715		◆	◆		
Delta					
Basran Fuels 9486 River Rd. 540 Ewens Avenue 604-522-1628					◆
Langley					
Cloverdale Fuel Ltd. 20408 - 102B Avenue www.cloverdalefuel.com 604-534-4313				◆	◆
Langley Transfer Station 1070 - 272nd Street, Aldergrove www.metrovancouver.org/ services/solidwaste/disposal/ Pages/disposalfacilities.aspx 604-856-3225		◆	◆		
Slater Iron & Salvage Co. Ltd. Hangar 18A 5225 - 216 Street www.slateriron.com 604-533-8522					
West Coast Metal Recycling R & P Metals 19841 - 57A Avenue www.westcoastmetalrecycling.com 604-534-3531					

Scrap Metal	Wood	Mixed Construction Waste	Green Waste	Residential and/or Commercial Loads	Comments
				C	
	◆	◆		Both	5-10% of wood in load can have paint, nails and rotted wood. No treated wood, furniture or plastic laminated materials
◆				Both	Large transports must make an appointment
	◆			Both	New construction wood waste only
	◆	◆		Both	
◆	◆		◆	R	Maximum vehicle size allowed is 1 tonne
◆				C	Materials must be worth \$100 in value or greater
non-ferrous metals only				Both	

	Concrete & Asphalt	Cardboard	Drywall	Land Clearing Debris	Pallets
Maple Ridge					
Fraser Valley Metal Exchange 23359-A Fisherman Road www.fvme.com 604-467-7878					
Maple Ridge Transfer Station 10092 - 236th Street www.metrovancouver.org/services/solidwaste/disposal/Pages/disposalfacilities.aspx 604-466-9277		◆	◆		
Ridge Meadows Recycling Society 10092 - 236th Street www.rmrecycling.org 604-463-5545		◆			
New Westminster					
New West Gypsum Recycling 38 Vulcan Street www.nwgypsum.com 604-520-6647			◆		
New Westminster Recycling Depot 65 East 6th Ave (corner of 6th & McBride) www.newwestcity.ca/cityhall/operations/recycling/index.html 604-968-4208		◆			
Urban Wood Waste Recyclers 4 Spruce Street www.uwwr.com 604-527-4060	◆	◆		◆	◆
North Vancouver					
B.A. Blacktop Ltd. 6 Riverside Drive www.bablacktop.com 604-929-7974	◆				
North Shore Recycling Depot 75 Riverside Drive www.nsrp.bc.ca 604-981-3124		◆			

Scrap Metal	Wood	Mixed Construction Waste	Green Waste	Residential and/or Commercial Loads	Comments
Maple Ridge					
◆				Both	
	◆		◆	R	Maximum vehicle size allowed is 1 tonne
◆				Both	
New Westminster					
				Both	
◆			◆	R	
◆	◆	◆		C	
North Vancouver					
				Both	
				Both	Small commercial volumes. Call ahead to verify.

	Concrete & Asphalt	Cardboard	Drywall	Land Clearing Debris	Pallets
North Shore Transfer Station (Wastech) 30 Riverside Drive www.metrovancouver.org/services/solidwaste/disposal/Pages/disposalfacilities.aspx 604-929-5471			◆		
Pitt Meadows					
Fraser Richmond Soil & Fibre Ltd. 12620 Woolridge Road www.fraserrichmond.ca 604-220-2385				Small Diameter	
Richmond					
Allied Salvage & Metals (1985) Ltd. 11651 Twigg Place (Mitchell Island) www.alliedsalvagemetals.com 604-322-6629					
City of Richmond Recycling Depot 5555 Lynas Lane www.richmond.ca/services/recycling/services/depot.htm 604-276-4010		◆			
Columbia Lafarge 13340 Mitchell Road (Mitchell Island) www.lafarge-na.com 604-324-3591	◆				
Inner City Recycling 11640 Twigg Place (Mitchell Island) 604-327-0957	◆	◆		◆	◆
Mainland Sand and Gravel 124500 No. 5 Road 604-271-2555	◆				
Regional Recycling 13300 Vulcan Way www.regionalrecycling.ca/richmond.html 604-276-8270		◆			
Richmond Steel Recycling Ltd. 11760 Mitchell Road (Mitchell Island) 604-324-4656					

Scrap Metal	Wood	Mixed Construction Waste	Green Waste	Residential and/or Commercial Loads	Comments
◆	◆		◆	Both	
Pitt Meadows					
			◆	Both	
Richmond					
◆				Both	
◆			◆	R	
				C	
◆	◆	◆		C	
				Both	
◆				Both	
◆				Both	

	Concrete & Asphalt	Cardboard	Drywall	Land Clearing Debris	Pallets
Richvan Holdings Ltd. 15300 River Road 604-270-8922	◆				
Western Gypsum Recyclers 11610 Twigg Place (west side of Mitchell Island) 604-325-3299			◆		
Surrey					
A-Topco Pallet Recycling Ltd. Unit 8 - 10619 Timberland Road 604-582-2020					◆
METRO Materials Recovery 12345 - 104th Avenue www.metrowaste.com 604-589-4385		◆			
RDM 10255 Timberland Rd. www.rdmenterprises.com 604-580-6211	◆				
Rypac Aluminum Recycling Ltd. 11849 Tannery Road www.rypacmetalrecycling.com 604-580-7471					
Scott Road Trading Ltd. 12855 King George Highway www.scottroadtrading.com 604-580-0771		◆			
Slater Iron & Salvage Co. Ltd. 19355 - 54th Ave www.slateriron.com 604-533-8522					
Super Save Disposal 12683 - 116th Ave www.supersave.ca 604-594-8901	◆	◆			◆
Surrey Transfer Station 9770 192nd Street www.metrovancouver.org/services/solidwaste/disposal/Pages/disposalfacilities.aspx 604-513-2409		◆	◆		

Scrap Metal	Wood	Mixed Construction Waste	Green Waste	Residential and/or Commercial Loads	Comments
				C	
				Both	No demolition gypsum or with tiles attached; new gypsum only
Surrey					
				Both	
				C	
				Both	Accepts rocks
non-ferrous metals only				Both	Minimum 100kg loads
◆				Both	
◆				C	
◆	◆	◆		C	
◆	◆	◆		R	

	Concrete & Asphalt	Cardboard	Drywall	Land Clearing Debris	Pallets
Vancouver					
Capital Salvage 1919 Triumph Street 604-253-8481					
City of Vancouver Transfer Station and Recycling Depot 377 West Kent Avenue North www.vancouver.ca/engsvcs/solidwaste/transfer/index.htm 604-326-4600		◆			
Davis Trading Ltd. 1100 Grant Street www.davistrading.ca 604-255-3111					
METRO Materials Recovery 8325 Main Street www.metrowaste.com 604-327-5272		◆			
North Star Recycling 1170 Powell Street 604-254-2734					
Pacific Metals Ltd. 8360 Ontario Street www.pacificmetals.ca 604-327-1148		◆			
Recycling Alternative 360 Industrial Avenue www.recyclingalternative.com 604-874-7283		◆			
Regional Recycling 960 Evans Avenue www.regionalrecycling.ca/vancouver.html 604-689-4722		◆			
Urban Wood Waste Recyclers 110 East 69th Avenue www.uwwr.com 604-327-5052	◆	◆		◆	◆

Scrap Metal	Wood	Mixed Construction Waste	Green Waste	Residential and/or Commercial Loads	Comments
Vancouver					
◆				Both	
◆			◆	R	
non-ferrous metals only				Both	
				C	
non-ferrous metals only				Both	
◆				C	
				Both	
				Both	
◆	◆	◆		C	

Directory of Hauling Services

The listed haulers pick up separated recyclable materials from construction and renovation sites in the Lower Mainland. Where indicated, haulers pick up mixed waste for offsite sorting.

	Materials				
	Concrete & Asphalt	Cardboard	Drywall	Land Clearing Debris	Scrap Metal
ABC Recycling Burnaby www.abcrecycling.com 604-522-9727					◆
Allied Salvage & Metals (1985) Ltd. Richmond www.alliedsalvagemetals.com 604-322-6629					◆
Annacis Waste Disposal Corp. Delta www.annaciswaste.com 604-594-7848	◆	◆	◆		◆
BFI Canada Coquitlam www.bficanada.com 604-525-2072	◆	◆	◆	◆	◆
Capital Salvage Vancouver 604-253-8481					◆
City Haul Disposal Vancouver 604-731-3100	◆	◆	◆		◆
Cloverdale Fuel Co. Langley www.cloverdalefuel.com 604-534-4313				◆	
Davis Trading Ltd. Vancouver www.davistrading.ca 604-255-3111					non-ferrous metals only

Materials		Service			Comments
Wood & Pallets	Mixed Construction Waste	Dual Bin	Commingled Recyclables Bin	Residential and/or Commercial	
				C	
				Both	
◆	◆			Both	Handle hazardous materials such as asbestos
◆	◆			Both	
				Both	
◆	◆			Both	Loading service only, do not provide bins
◆	◆			Both	
				C	

	Materials				
	Concrete & Asphalt	Cardboard	Drywall	Land Clearing Debris	Scrap Metal
First Choice Waste Disposal Ltd. Surrey 604-888-6122	◆	◆	◆		◆
Fleetwood Disposal Ltd. Burnaby 604-294-1393	◆	◆	◆	◆	◆
Fraser Valley Metal Exchange Maple Ridge www.fvme.com 604-467-7878					◆
Fresh Start Recycling & Disposal Vancouver www.freshstartrecycling.com 604-637-6400	◆	◆	◆		◆
Maple Leaf Disposal Ltd. Coquitlam www.mapleleafdisposal.com 604-540-4992	◆	◆	◆	◆	◆
Mark's Disposal Service Vancouver www.skinnybins.com 604-261-6198	◆	◆	◆	◆	◆
Mini Bin BC Vancouver www.minibinbc.ca 604-552-2467	◆	◆	◆	◆	◆
Mini-Load Disposal Ltd. Burnaby 604-431-7701					
North Star Recycling Vancouver 604-254-2734					non-ferrous metals only
Northwest Waste Systems Coquitlam 604-524-4042	◆	◆	◆	◆	◆

Materials		Service			Comments
Wood & Pallets	Mixed Construction Waste	Dual Bin	Commingled Recyclables Bin	Residential and/or Commercial	
◆	◆			C	
◆	◆			Both	
				Both	
	◆			Both	Service mostly renovation contractors, building managers and homeowners
◆	◆		◆	C	
◆	◆			Both	Bins designed for narrow lanes and streets
◆	◆			Both	
◆	◆		◆	Both	
				C	
◆	◆			C	

	Materials				
	Concrete & Asphalt	Cardboard	Drywall	Land Clearing Debris	Scrap Metal
Prompt Waste Management Langley www.promptwaste.com 1-877-853-0487	◆	◆	◆	◆	◆
Pacific Metals Ltd. Vancouver www.pacificmetals.ca 604-327-1148		◆			◆
Recycling Alternative Vancouver www.recyclingalternative.com 604-874-7283		◆			
Richmond Steel Recycling Ltd. Richmond 604-324-4656					◆
Rypac Aluminum Recycling Ltd. Surrey www.rypacmetalrecycling.com 604-580-7471					non-ferrous metals only
Scott Road Trading Ltd. Surrey www.scottroadtrading.com 604-580-0771		◆			◆
Smithrite Disposal Ltd. Coquitlam www.smithrite.com 604-529-4030	◆	◆	◆	◆	◆
Super Save Waste Systems Inc. Surrey www.supersave.ca 604-533-4423	◆	◆	◆	◆	◆
Urban Impact Recycling Ltd. Richmond www.urbanimpact.com 604-273-0089		◆		◆	◆

Materials		Service			Comments
Wood & Pallets	Mixed Construction Waste	Dual Bin	Commingled Recyclables Bin	Residential and/or Commercial	
◆				Both	
				C	
				Both	
				C	
				C	Pick up loads over 200 kg
				C	
◆	◆			Both	
◆	◆		◆	Both	
◆	◆		◆	Both	

	Materials				
	Concrete & Asphalt	Cardboard	Drywall	Land Clearing Debris	Scrap Metal
Waste Management of Canada Coquitlam www.wmcanada.com 604-520-7800	◆	◆	◆	◆	◆
Waste Services Inc. Abbotsford www.wasteservicesinc.com 604-857-1990		◆	◆	◆	◆
Wescan Disposal Coquitlam www.wescandisposal.com 604-526-9511	◆	◆	◆	◆	◆
West Coast Metal Recycling Langley www.westcoastmetalrecycling.com 604-534-3531					non-ferrous metals only
Western Material Recovery Richmond 604-325-3299			◆		
West Coast Metal Recycling Langley 604-534-3531					non-ferrous metals only
Western Gypsum Recycling Richmond 604-325-3299			◆		

	Materials		Service		Comments
	Wood & Pallets	Mixed Construction Waste	Dual Bin	Commingled Recyclables Bin	
	◆	◆		◆	C
	◆	◆			Both
	◆	◆			Both
					Both
					C
					C
					C

Summary of Roles

The following is a summary of the roles that all parties must play to maximize the amount of construction and demolition waste that is diverted from disposal.

General Contractor

- Estimate waste generation, salvage and recycling opportunities
- Identify a recycling program that is best suited for the site
- Select a waste hauler with experience in job site recycling
- Setup the program on site
- Educate workers
- Monitor waste management program day-to-day
- Record keeping and reporting

Developers, Property Owners and Managers

- Make waste reduction a priority from the start of the project
- Set waste diversion goals for the project
- Support the waste management program, during the duration of the project

Architects/Designers

- At the design stage try to prevent waste by:
 1. Selecting standard sizes for all building materials to minimize waste on site (i.e. off cuts)
 2. Designing spaces that would be flexible to changing uses
 3. Designing for deconstruction
- Identify material reuse and waste reduction opportunities
- Select a contractor with established experience in job site recycling
- Include a construction waste management specification
- Write a waste management plan
- Monitor the job site recycling program
- Report on the program's success

Construction Waste Management Plan

A construction waste management plan is a document that contains all the information needed by any worker on site to be able to achieve the project's goals and targets. A sample construction waste management plan is available in Metro Vancouver's LEED for Contractor's Guide at <http://www.metrovancouver.org/about/publications/Publications/greenconstructionLEEDforcontractors08.pdf>.

The plan needs to contain information about:

- 1. Project's waste diversion goals and targets goals.**
- 2. Name(s) and contact information** of person(s) responsible for waste management on site.
- 3. An estimate of the types and quantities of materials** generated.
- 4. List of how and where** each material will be removed and salvaged or recycled.
- 5. Costs and revenues** from salvaged and recycled materials.
- 6. Methods and techniques** for collecting, separating and recycling materials.
- 7. Methods of assessment,** abatement and safe disposal of hazardous materials.
- 8. Plans for training, meetings and other communications** related to job site waste management, including:
 - Procedures for educating workers and sub-contractors
 - Site setup and identification of collection areas
- 9. Troubleshooting instructions and contact information** for:
 - Waste haulers
 - Used building materials yards
 - Licensed recycling and disposal facilities
- 10. Reporting and record keeping** including:
 - Collect and record all cost and revenue data
 - Calculate waste diversion rate
 - Report on any new opportunities, not previously identified, to minimize waste on site through reuse, salvage or recycling

Construction and Deconstruction Projects Material Inventory Form

This form can be used to track and report construction and/or deconstruction waste management amounts.

To download a full-size PDF version of this inventory form that you can print out and use, visit www.metrovancouver.org/buildsmart.

Company Name		Contact Person		Phone		
Project Site/Location		Project Type <input type="checkbox"/> New Construction <input type="checkbox"/> Renovation <input type="checkbox"/> Partial Deconstruction <input type="checkbox"/> Complete Deconstruction		Estimated Completion Time		
Building Construction <input type="checkbox"/> Combustible <input type="checkbox"/> Noncombustible <input type="checkbox"/> Combination (SPECIFY: _____)		Building Type <input type="checkbox"/> Residential <input type="checkbox"/> Commercial <input type="checkbox"/> Industrial		Total Area (SQ.FT. OR SQ.M.)		
Pre-Project Audit		Project Summary				
		For period: _____ to _____				
Material	Estimated Generation	Salvaged	Recycled	Disposed	Facility	Remarks/Comments
Signature _____		Title _____		Date _____		
EXPLANATORY NOTES:						
Column 1 Material: enter materials targeted for salvage, recycling, and/or disposal						
Column 2 Estimated Generation: enter the estimated volumes, quantities, or number of salvageable, recyclable, and waste materials generated (e.g., cu yd, tonnes, board ft.)						
Columns 3, 4 & 5 Salvaged, Recycled and Disposed: enter the volumes, quantities, or number of materials handled (e.g., cu, yd, tonnes, board ft.)						
Column 6 Facility: enter the end-destination of salvaged, recycled, and disposed materials						
Column 7 Remarks/Comments: enter any additional comments or details as required						

Demolition, New Construction and Renovation Projects Waste Generation Rates

Type of Building	Activity*	Waste Generation Rates	Composition (by weight)					
			WOOD	DRYWALL	METALS	CONCRETE/ ASPHALT	CORRUGATED CARDBOARD	MISC
Residential	D	Single Family 547 kg/m ² (111 lbs/sq ft) (including concrete)	44%	2%	3%	25%	-	26%
		Multi-Family 626 kg/m ² (127 lbs/sq ft)	65%	21%	1%	2%	9%	
	NC	Single Family 23.7 kg/kg/m ² (4.8 lbs/sq ft) Multi-Family 16.3 kg/m ² (3.3 lbs/sq ft)	Renovation waste is highly variable in its make-up depending on the type and extent of renovation work undertaken					
Commercial	R	84 kg/m ² (17 lbs/sq ft)*	16%	-	5%	68%	11%	
	D	764 kg/m ² (155 lbs/sq ft)	60%	4%	-	12%	24%	
	NC	Low-rise 12.3 kg/m ² (2.5 lbs/sq ft) High-rise 51.7 kg/m ² (10.5 lbs/sq ft)	9%	19%	2%	38%	32%	
	R	39 kg/m ² (8 lbs/sq ft)**	Renovation waste is highly variable in its make-up depending on the type and extent of renovation work undertaken					

D: Demolition
 NC: New Construction
 R: Renovation

* This is an average calculated from a wide range of renovation projects such as kitchen, bathroom, deck and roof

** This rate was calculated from a range of commercial retrofits and tenant improvement projects

Source: Squamish-Lillooet Regional District Construction and Demolition Waste Management Study, October 2003
 Characterization of Building-Related Construction and Demolition Debris in the United States, June 1998

Prohibited/Restricted Wastes at Local Landfills and Transfer Stations

List of Prohibited Wastes at the Ecowaste Landfill*

www.ecowaste.com

- Hazardous wastes as defined by the Hazardous Waste Regulation of the BC Environmental Management Act
- Semisolid sludge or liquid wastes
- Automobiles, white goods, household appliances, metallic car parts, large metallic objects, tires (other than small utility tires which can not be recycled)
- Food wastes or other putrescible refuse or dead animals
- Bulk quantities of waste paper, newspaper and corrugated cardboard
- Gypsum board in excess of 1% of any individual load (5% in the case of fire damaged materials)
- Excavation material and/or soil, unless pre-approved. Soils of residential or industrial quality based on the applicable numerical soil standards in the Contaminated Sites Regulation are acceptable. Certain soils with contamination levels above the industrial level ("Waste Soil") may be accepted on a case by case basis
- Asbestos or materials containing asbestos
- Concrete with heavy rebar

Restricted Materials at Metro Vancouver disposal sites

www.metrovancouver.org/services/solidwaste/disposal/Pages/bannedmaterials.aspx

- Appliances (washers, dryers, refrigerators and more)
- Asbestos
- Compact fluorescent bulbs
- Fluorescent tubes
- Milk containers (includes soy & rice milk)
- Rechargeable batteries
- Sod
- Odourous and dusty loads
- Propane tanks

*partial list only; call for more information

List of Prohibited Wastes at the Vancouver Landfill

www.vancouver.ca/engsvcs/solidwaste/landfill/index.htm

- Hazardous wastes (i.e. pathogenic and radioactive materials)
- Hazardous wastes as defined by the Hazardous Waste Regulation of the BC Environmental Management Act
- Biomedical waste, including sharps
- Paint
- Liquid wastes and sludges
- Explosive substances
- Chemicals or other materials which may create hazardous working conditions
- Inflammable materials
- Materials hot enough to start combustion
- Automobile bodies
- Boat hulls longer than 30 ft, and/or containing any metals or oils (fibreglass and wood parts are accepted for disposal only)
- Dead animals and animal parts including bones, feathers, skin, hair, nails and teeth (excluding processed meat)
- All forms of excrement
- Barrels, drums and other large liquid containers, whether full or empty
- Lumber, timber, logs, etc., longer than 3.6m (12ft)
- Solid objects larger in cross section than 3500 cm² (3.8ft²) if longer than 2.5m (8ft)
- Fabricated objects wider or thicker than 1.2m (4ft) and longer than 2.5m (8ft)
- Soil with contaminant levels exceeding Urban Park standards defined by the Contaminated Sites Regulation of the Environmental Management Act
- Coated or uncoated wire or cable in excess of 1% by weight of any load
- Commercial loads of dry cell batteries
- Materials accepted for recycling at the landfill
- Asbestos and materials containing asbestos that are not double-bagged
- Desktop computers, computer monitors, notebook computers, desktop printers and fax machines, and televisions

Note: A 50% surcharge may be assessed on garbage loads containing banned materials in excess of 5% or more by volume (see list on page 5).



**Metro Vancouver's source for
sustainable building information**

For more information, or to browse the online sustainable products and services directory, please visit

www.metrovancouver.org/buildsmart

Contact a Business Advisor at 604-451-6575 or
email buildsmart@metrovancover.org.



For information on the
Zero Waste Challenge
or for guidance on how to
move your business towards
sustainability, please visit

www.metrovancouver.org



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