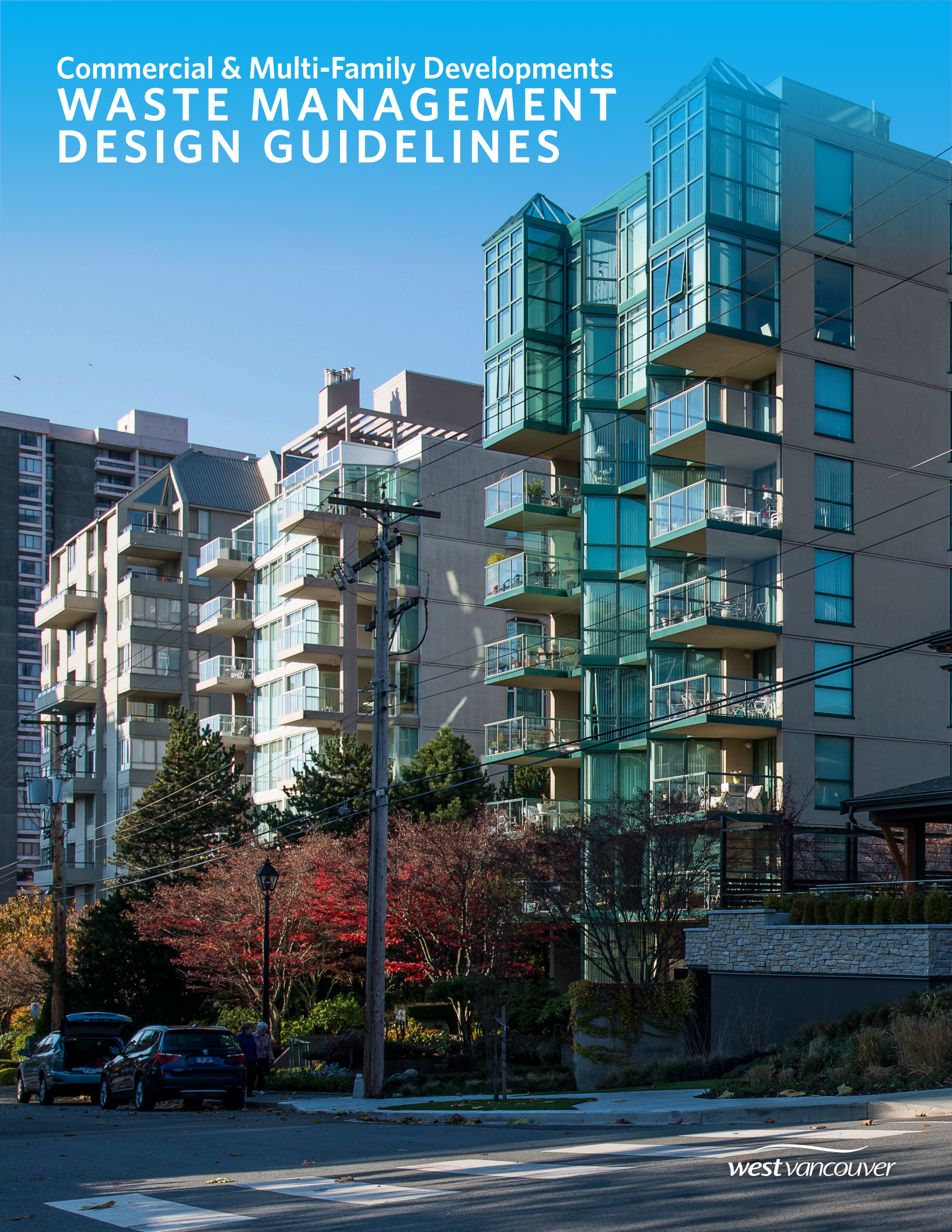


Commercial & Multi-Family Developments WASTE MANAGEMENT DESIGN GUIDELINES



We would like to thank the City of Richmond and the District of Squamish for generously allowing West Vancouver to use their *Commercial and Multi-Family Developments Waste Management Design Guidelines* and *Wildlife Proof Enclosure Guideline* as a reference for this document.

CONTENTS

INTRODUCTION	2
GOALS & OBJECTIVES	4
GENERAL RESPONSIBILITIES	5
DESIGN GUIDELINES & CRITERIA	8
ATTACHMENT 1 waste management overlay plan sample	21
ATTACHMENT 2 guide to estimating the recycling & garbage container needs for weekly collection	22
ATTACHMENT 3 container measurements & storage space required	26
ATTACHMENT 4 general specifications for different waste containers	27
ATTACHMENT 5 temporary storage facility location	29
ATTACHMENT 6 common solutions for barriers to multi-family waste reduction & diversion	30
ATTACHMENT 7 technical specifications checklist	31
ATTACHMENT 8 streetside recycling requirements	34
ATTACHMENT 9 wildlife proof enclosure guidelines	35

PAPER



MIXED PAPER



INTRODUCTION

Recycling and waste management is an integral part of the development and planning process for commercial and multi-family buildings. These guidelines assist developers with addressing these service requirements.

These guidelines:

- help with the design of suitable solid waste management spaces that meet local District regulations and comply with Metro Vancouver disposal bans
- create waste management spaces that are safe, easy to use, and help prevent conflicts between humans and wildlife
- streamline the development process by ensuring key requirements are considered and met as part of the initial application
- detail the key assessment criteria as part of design planning
- provide tips and formulas for calculating the space required based on use to ensure that sufficient collection services can be accommodated
- outline property owner and developer responsibilities for the development of waste management facilities that properly manage wildlife attractants and meet these guidelines

Please note that this document should be used with, not in place of, all applicable building codes, District standards, and other relevant legislation.



Containers

Yes:



No:



Mixed Paper Products



Please:

Keep all containers in the lid of the bin.

Do not use the bin for anything else.

Recycle newspaper (press) with your newspaper.
newspaper

604.929.3416
www.msrp.bc.ca

Remove & recycle lids. Rinse clean. Flatten or nest where possible.
containers

604.929.3416
www.northshorerecycling.ca

Remove lids & ends. Flatten. Washed and empty OK.
mixed paper

604.929.3416
www.msrp.bc.ca

GOALS & OBJECTIVES

These guidelines were developed to make waste management spaces safe, properly-sized, and accessible—which will help achieve targeted waste diversion, minimize contamination, and reduce conflicts between humans and wildlife.

These objectives are to:

- develop building design to support convenient access to a full range of recycling and garbage services
- create efficient, centralized waste management spaces with sufficient area for solid waste storage containers, minimizing contamination
- support building design that provides sufficient space for access to, and the removal of, solid waste by collection vehicles, including the necessary turn radius, height, length, and width clearance
- support easy to read and updated instructional material (e.g. signage)
- reduce conflicts between humans and wildlife

DID YOU KNOW?

Multi-family occupants often experience similar barriers related to waste reduction and diversion.

For an overview of these barriers and common solutions, see attachment 6 on page 30.

GENERAL RESPONSIBILITIES

The District does not provide garbage, organic, or recycling services to commercial properties or multi-unit residential homes. Multi-unit residential recycling collection is available from Recycle BC. A developer has three primary responsibilities concerning garbage and recycling management:


1 Ensure adequate storage & collection

A developer is responsible for meeting the property's needs by:

- providing adequate storage for garbage and recycling
- ensuring any wildlife attractants are not accessible to wildlife
see Wildlife Proof Enclosure Guidelines on page 35
- ensuring there are collection services in place
- ensuring there is sufficient space for access to collection and loading areas

2 Comply with disposal bans

Developers must design their systems so occupants can comply with Metro Vancouver's enhanced disposal bans. The following materials are banned from being disposed of in the garbage and must be recycled instead:

- corrugated cardboard
- recyclable paper
- food scraps and yard trimmings
- containers made of glass, metal, or recyclable plastic 
- beverage containers
- clean wood
- all product stewardship items

This is a representative list only. For more information on bans, alternative disposal options and fines, please refer to metrovancover.org.

3 Meet government regulations related to waste management

The following are some of the key regulations related to waste management that affect the development and management of multi-family and commercial buildings:

DISTRICT OF WEST VANCOUVER BYLAWS

Solid Waste Utility Bylaw 4740, 2012

- outlines the requirements and collection standards for the management of garbage, recycling materials, and food scraps from all residential buildings
- requires that recyclable materials including food scraps be separated from the garbage
- outlines requirements for managing wildlife attractants and wildlife resistant enclosures
- outlines District services and processes required
- addresses noise restrictions and allowable collection hours, materials accepted, weight limitation, correct packaging for collection, etc.

Good Neighbour Bylaw 4380, 2004

- outlines requirements to prevent discarded material from accumulating on private property

Boulevard Bylaw 4886, 2016

- outlines the requirements to keep the boulevard in good and safe condition, including removing all litter and debris

For full details on District of West Vancouver bylaws, please visit westvancouver.ca.

OTHER RELATED REGULATIONS

BC Public Health, Section 5.2

- ensures there is no accumulation of materials that could constitute a public health hazard

BC Building Code 2012 section 3.5.2 except as provided in sentence 3.5.3.3(9)

- ensures rooms for temporary storage of combustible refuse—such as garbage or waste paper—are separated from the remainder of the building by a fire separation with a fire-resistance rating of not less than 90 minutes, and be sprinklered

Metro Vancouver Tipping Fee Bylaw and Disposal Bans

- listing of banned materials that Metro Vancouver disposal facilities do not accept, either because there are already disposal programs set up for these items or because they are hazardous to waste collection workers, the public, and environment
- at disposal sites, garbage loads are inspected for banned and prohibited materials
 - loads that arrive at the disposal sites containing prohibited materials are assessed a minimum surcharge, plus the cost of removal, clean-up, or remediation
 - loads containing banned materials are assessed a 50% tipping fee surcharge



REFUNDABLES

WOMEN
FIRST

100% RECYCLED
PLASTIC

DESIGN GUIDELINES & CRITERIA

The following 10 steps are intended to assist developers with planning for commercial and multi-family buildings. Following these steps will help to accelerate permit processing time by ensuring the development design meets all regulations and developer responsibilities.

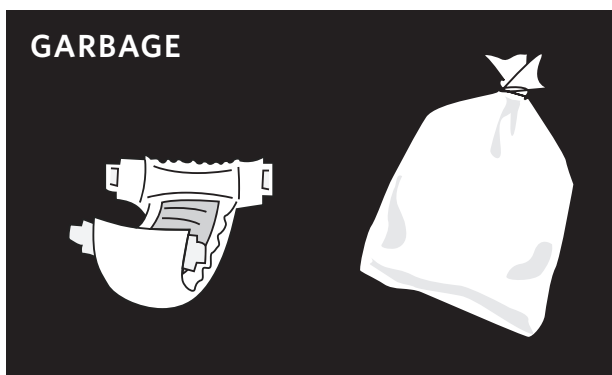
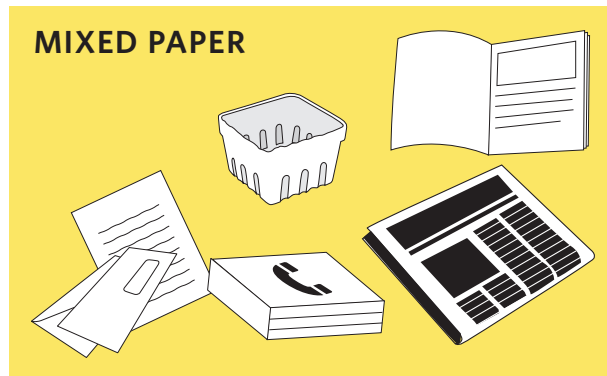
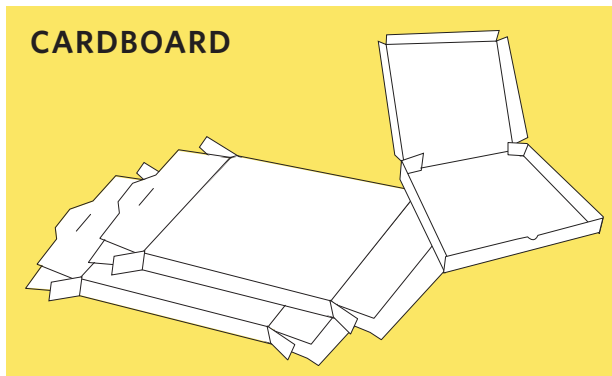
SUMMARY OF STEPS

1. determine type and volume of recycling and garbage that will be generated on-site
2. determine recycling and garbage collection service provider
3. calculate the number and type of containers required
4. calculate the storage space required
5. design the storage/collection area
6. determine access route for collection vehicles and turning radius
7. designate collection/loading area
8. develop and submit a waste management overlay plan
9. complete and submit technical specifications: attachment 7
10. consider streetside garbage and recycling requirements

1 Determine type and volume of recycling and garbage that will be generated on site

The first step involves assessing the types of garbage and recyclable materials that are most likely to be produced by the occupants of the building. In addition to the common items listed here, specialized recyclable items may include: grease, clean wood, hazardous materials, or other items banned from disposal in the garbage.

OCCUPANTS MUST HAVE ACCESS TO DISPOSE OF:



The following charts show the approximate waste volume generated for different types of building use.*Data used with permission from the City of Vancouver.

Please note the generated rates listed are only general estimates and may vary from actual rates. We recommend developers consult with a waste hauler to assist with estimating recycling and garbage requirements.

WASTE CATEGORIES	ESTIMATED VOLUME GENERATED (litres/unit/week)
MULTI-FAMILY RESIDENTIAL BUILDING	
garbage	53.00
glass jars & bottles	2.10
mixed containers	18.50
mixed papers (including cardboard)	42.90
mixed papers (excluding cardboard)	15.00
cardboard	27.50
food scraps & yard trimmings	14.00

WASTE CATEGORIES	ESTIMATED VOLUME GENERATED (litres/room/week)
HOSPITALITY BUILDING	
garbage	47.50
mixed containers	3.50
mixed papers	8.30
cardboard	14.30
oil/grease	0.33
food scraps & yard trimmings	20.00

WASTE CATEGORIES	ESTIMATED VOLUME GENERATED (litres/cubic metres/week)			
COMMERCIAL BUILDINGS:	OFFICE BUILDING	RETAIL BUILDING	FOOD SERVICE ESTABLISHMENT	LARGE VENUES
garbage	1.00	2.25	1.65	3.10
mixed papers	0.65	1.50	2.05	1.50
mixed containers	0.375	0.65	2.00	1.70
cardboard	0.65	2.30	3.75	2.00
food scraps & yard trimmings	0.57	N/A	2.00	1.86
oil/grease	N/A	N/A	0.35	N/A

DID YOU KNOW?

Food sector establishments must properly manage used cooking oils and grease to ensure no grease or oil is poured in any sink or floor drain.

Proper management includes installing and maintaining grease interceptors and recycling used oil and grease. To learn more, call the RCBC Recycling Hotline at 604-732-9253.

See page 13 for more information about proper grease disposal.

2 Determine recycling and garbage collection service provider

Some garbage and recycling services are mandatory as per Bylaw 4740. Other services may be available as an option and contracted through private waste haulers.

The following program requirements outline the services that must be offered at all multi-family buildings (townhomes and apartments), mixed-use, and commercial buildings, as well as service provider options available based on building type.

PROGRAM REQUIREMENTS

COLLECTION TYPE	RECYCLING	CARDBOARD	GARBAGE	ORGANIC
TOWNHOUSE				
centralized	blue cart program	optional additional cardboard container service from private waste hauler	garbage cart service from private waste hauler	green can service from private waste hauler
curbside* <i>*curbside collection can be provided where access is available</i>	blue box program	not applicable <i>cardboard is collected through blue box program</i>	District garbage program	District green can program
APARTMENT				
centralized	blue cart program	optional additional cardboard container service hauler	garbage cart service from private waste hauler	green can service from private waste hauler
MIXED USE: RESIDENTIAL / COMMERCIAL <i>NOTE: Residential/commercial properties require two separate facilities to ensure residential recycling and garbage is separate from commercial recycling and garbage.</i>				
centralized residential	blue cart program	optional additional cardboard container service from private waste hauler	garbage cart service from private waste hauler	green can service from private waste hauler
centralized commercial	recycling cart service from private waste hauler	optional additional cardboard container service from private waste hauler	garbage cart service from private waste hauler	green can service from private waste hauler
OFFICE / COMMERCIAL / INSTITUTIONAL				
centralized	recycling cart service from private waste hauler	optional additional cardboard container service from private waste hauler	garbage cart service from private waste hauler	green can service from private waste hauler

LARGER BUILDING GARBAGE AND CARDBOARD COLLECTION

Larger buildings are more suited to contracted services (front-end loading containers/compactors) for garbage and cardboard collection. For information about general container measurements, size, weight and footprint, see attachment 3 on page 26.

3 Calculate the number and type of containers required


The quantity of containers required depends on the type of collection service the building is designed for. Most multi-family buildings will have centralized collection areas, where occupants bring their garbage and recycling to the designated area. It's important for developers to determine the type of collection that will be used when calculating container requirements.

The following is an overview of the types and quantity of containers required, which also assists with designing centralized collection areas with sufficient space. For a detailed guide to estimate the number of containers required for your building, please see attachment 2 on pages 22-25.

CENTRALIZED COLLECTION

If the building is designed to have centralized collection, ideally, the designated garbage and recycling space is a separate internal storage room. It is essential to calculate how many containers will be required to determine the space required. Please use the guidelines below to calculate the number of carts required for blue cart program services.

BLUE CART PROGRAM

	CONTAINERS RECYCLING CART mixed containers	GLASS RECYCLING CART glass jars & bottles	MIXED PAPER RECYCLING CART mixed paper
number of containers	1 cart for every 7 units	1 cart per recycling room	1 cart for every 7 units
collection frequency	weekly	weekly	weekly
standard container	360 litres	240 litres	360 litres

The District of West Vancouver has an Excel spreadsheet tool* with built-in formulas to make it easy to calculate the number of containers required for residential and commercial buildings. For a copy of this tool, please contact the District via email at westvancollect@westvancouver.ca.

* This tool was developed by the City of Richmond and generously made available for use in West Vancouver. Please note that the number of containers are only an approximation and vary depending on the type of business.

DID YOU KNOW?

The District does not offer centralized service for multi-family and commercial properties. Multi-family residential recycling is provided by Recycle BC. For garbage, organics, and other collection services, please contact a private hauler.

PRIVATE WASTE HAULER COLLECTION OPTIONS

The District does not provide these services. Please contact a private waste hauler.



GREEN CART food scraps & yard trimmings	GARBAGE CART non-recyclable & non-compostable materials	FRONT-END CONTAINER non-recyclable & non-compostable materials	COMPACTOR non-recyclable & non-compostable materials
1 cart for every 25 units, 1 kitchen container for each unit	1 cart for every 5 units	see attachment 4 on page 28 for private waste hauler collection container details	see attachment 4 on page 27 for private waste hauler collection container details
weekly or twice weekly	weekly or twice weekly	contact private waste hauler	contact private waste hauler
240 litres	360 litres	contact private waste hauler	contact private waste hauler

COMMERCIAL GREASE COLLECTION

Oils and grease should never be disposed of down sinks, drains, or garburators because the material hardens and builds up on the inside of sewage lines, causing blockages. This can lead to breaks and sewage spills or overflows. Commercial operators must have proper containers and systems in place to collect and safely dispose of oils, grease, and other liquid fats.

OIL AND GREASE CONTAINER OPTIONS:



	DRUM	CONTAINER
description	specialty-designed trucks to collect, sits stationary on the ground	specialty-designed trucks to collect requires room for collection containers may have wheels to move around
typical size	45 gallon (170 litres)	90 cm tall, 107 cm wide, 84 cm deep and taper to 56 cm (2.2 yard ³) OR 90 cm tall, 107 cm wide, 109 cm deep and taper to 81 cm (2.75 yard ³)
full weight	180 kg	545-910 kg



CURBSIDE COLLECTION

Municipal curbside collection service may be available for townhomes with fewer than 10 units. If requesting curbside service from the District, developers should include wildlife-secure container storage space for each unit and propose set out location(s) where containers will be placed on collection day. The set out location(s) must be accessible from a public roadway and allow sufficient vehicle turning radius.

GARBAGE CAN non-recyclable & non-compostable materials	BLUE BOX mixed containers	YELLOW BAG mixed paper	GREY BOX glass jars & bottles	GREEN CAN food scraps & yard trimmings

quantity for each unit	2	unlimited	unlimited	unlimited	unlimited
collection frequency	biweekly	weekly	weekly	weekly	weekly
standard container	77 litres	61 litre max	n/a	n/a	46 litres



4 Calculate the storage space required

CENTRALIZED COLLECTION

Use the formula* below to estimate the total storage space required to house the required number of containers.

$$\text{NUMBER OF CONTAINERS} \times \text{FOOTPRINT OF EACH CONTAINER} \times \text{MANOEUVRE FACTOR}$$

Refer to calculation from Step 3.

For examples of various bin and cart types and their related height and manoeuvre factors, please refer to attachment 3.

The manoeuvre factor allocates space required to move the containers inside the storage facility. A value of 2–2.25 is recommended.

CURBSIDE (DOOR-TO-DOOR) COLLECTION

Occupants are required to store garbage and recycling containers in their unit (e.g. garage, backyard). The storage location for these receptacles varies depending on strata bylaws.

* Storage space formula courtesy of the City of Vancouver.

5 Design the storage/collection area

A storage facility must be designed to allow containers to be easily accessed and moved.

Ideally, a separate room is designated for waste collection and storage. However, if a separate room is not feasible, a shed or enclosure is a viable option. In all cases, the area must be large enough to store all recycling and garbage between designated collection days and allow movement of the containers. Designated areas must also meet fire safety requirements. The storage facility should include the following considerations as a minimum standard:

ELEMENT	DESIGN GUIDELINES
floor	<ul style="list-style-type: none"> must have a hard surface (concrete is required if installing a compactor) that is able to withstand a 28-tonne collection truck
drainage	<ul style="list-style-type: none"> must drain to sanitary sewer oil separator required at food services and restaurants
door size	<ul style="list-style-type: none"> must contain a double door to ensure there is enough space to move the containers should be able to accommodate an appropriate number of containers that will not overflow between collection days total area of the facility should be about 2.0 to 2.25 times the physical footprint of the containers to allow for adequate space for manoeuvring
configuration	<ul style="list-style-type: none"> configure to allow each garbage and recycling container to be individually accessed, removed and replaced without having to take out other containers no horizontal dimension (width or depth) is less than 2 metres to allow for access to waste containers
location	<p><i>Ideally, recycling facilities are located in close proximity to garbage facilities so that occupants find it as convenient to recycle as it is to dispose of garbage. Within the storage area, recycling, and garbage containers should be grouped separately to reduce confusion.</i></p> <p>the location must be:</p> <ul style="list-style-type: none"> within the legal parcel located at ground level or no more than one storey below grade <p>location of storage facility should NOT be:</p> <ul style="list-style-type: none"> on publicly owned rights-of-way where it may disrupt traffic circulation patterns between a street-facing facade of the structure and the street if the area is located outdoors to promote pedestrian safety in any required driveways, parking aisles or parking spaces for the structure (this impedes the use for pedestrians and occupants) in any location that may block or impede fire exits, public rights-of-ways, or pedestrian and vehicular access if a temporary storage facility is required to place recycling and garbage containers for collection—see attachment 5 on page 29
ventilation	<ul style="list-style-type: none"> have adequate ventilation for reduced smell and odour, and be in compliance with the BC Building Code requirements for ventilation
security	<ul style="list-style-type: none"> be protected from unlawful entry be equipped with locked doors or the containers should also be locked if they are accessible from outside the building to avoid illegal dumping
fire suppression	<ul style="list-style-type: none"> must be compliant with BC Building Code, District Building Bylaw, and Fire Code requirements
lighting	<ul style="list-style-type: none"> be well lit, both as a security measure and for ease of access; adequate lighting also discourages improper use of the containers and surrounding area
wildlife-safe	<ul style="list-style-type: none"> the type of material used for doors, windows, and the structure must be wildlife and rodent resistant
access for occupants	<ul style="list-style-type: none"> accessible to all occupants of the development, including those with restricted mobility <p><i>If an auxiliary area is designated for the facility outside the building, the area should be located adjacent for an entry point into the building for easy access by users.</i></p>
signage	<ul style="list-style-type: none"> must have clear signage in garbage and recycling facilities and on containers to ensure that materials go in the appropriate container to help prevent contamination



6 Determine access route for collection vehicles and turning radius

The following design elements address the need to allow a collection vehicle to enter the site, collect the recycling and garbage, and exit without having to reverse onto a public road—as this poses risks of pedestrian and vehicle accidents.

ELEMENT	DESIGN GUIDELINES
entry and exit	<ul style="list-style-type: none"> allow collection vehicles to enter the site, collect garbage and recycling, leave the site in a forward motion or via the use of a turnabout area, allowing for a three-point-turn of no less than one truck length if backing up is the only option, it must not compromise building structure, traffic operations and safety
driveway access	<ul style="list-style-type: none"> minimum width of 6 metres at the points of entrance and exit for the site
slope	<ul style="list-style-type: none"> ensure slope of access does not exceed 6%
vehicle access route	<ul style="list-style-type: none"> minimum width of 4.5 metres throughout vehicle access route
vehicle clearance	<ul style="list-style-type: none"> maintain a minimum vehicle clearance of 4.5 metres throughout the entire access route
turning radius	<ul style="list-style-type: none"> provide the collection vehicle a minimum turning radius of 12.5 metres throughout the entire access route building structure, such as an overhang, cannot extend pass the turning radius to prevent damage to the building <p>manual collection vehicle turning radius:</p> <ul style="list-style-type: none"> - truck length: 10.62 m (34.8') - truck width: 3.2 m (10.5') - wheel base: 6.5 m (21.3') - radius: 12.2 m (40') <p>front/top loader turning radius:</p> <ul style="list-style-type: none"> - truck length: 10 m (32.8') - truck width: 3.15 m (10') - wheel base: 5.4m (17.7') - radius: 12.8 m (42') <p>average truck ground clearance:</p> <ul style="list-style-type: none"> - front: 24 cm (9.5") - middle: 26 cm (10.25") - rear: 18 cm (7")

7 Designing collection/loading area

With automated collection and the mix of containers used for garbage and recycling services, loading and collection areas must be able to accommodate a mix of truck sizes and design. Trucks must have plenty of height clearance and room for their turn radius.

The chart below outlines the minimum dimensions for collection/loading trucks. For specific details on collection trucks, contact private service providers.

TYPICAL TRUCK DIMENSIONS (APPROXIMATE)

COLLECTION TYPE	TRUCK SIZE	LOADING	LENGTH	WIDTH	HEIGHT
DISTRICT TRUCKS					
garbage cart & green cart	SU9/ medium size	back loading	14 m (collection 15.5 m)	2.74 m	4.27-6 m
PRIVATELY CONTRACTED TRUCKS					
blue cart	SU9/ medium size	side loading	10.67 m	2.74 m	4.27 m (collection 5.79 m)
cardboard & garbage container	varies	front/top loading	10 m (collection 12.36 m)	3.15 m	4.2 m (collection 6.9 m)
low-profile garbage compactor	varies	hauling to offsite location	7.62 m	2.4 m	2.4 m (haul offsite to lift to 6.7 m)
garbage cart & organics cart	varies	back loading	14 m (collection 15.5 m)	2.74 m	4.2-6 m

The following are general guidelines for designing the collection/loading area:

ELEMENT	DESIGN GUIDELINES
clearance	<ul style="list-style-type: none"> maintain a minimum dimension: height: 7.5 m, width: 6 m, length: 15 m <i>All dimensions are unencumbered (e.g. unrestricted by fixtures such as sprinkler systems, meters, surveillance cameras, mirrors, landscaping, etc.)</i>
floor	<ul style="list-style-type: none"> accommodate a 28-tonne collection vehicle (<i>weight and axial loading to be considered by a structural engineer</i>)
size	<ul style="list-style-type: none"> dimension of pad should accommodate the number of containers used in the building
location	<ul style="list-style-type: none"> away from fresh air intakes for the building to discourage odour going into the building avoid location that interferes with pedestrian traffic and other vehicular access connected to the garbage and recycling storage space or temporary storage area via a level grade or continuous slope of no more than 6%

8 Develop and submit a waste management overlay plan

A Waste Management Overlay Plan summarizes all of the requirements outlined in steps 1 to 7 and highlights the key garbage and recycling components for the design of the building.

This includes showing where the garbage/recycling room(s) and collection/loading area(s) will be located, including truck ingress and egress. The overlay plan must be submitted with a developer's rezoning and/or development application. An example is provided in attachment 1. This plan should show the functional design of garbage and recycling services (mixed paper, mixed containers, glass jars and bottles, and food scraps) including the following:

- location of doorway access to the storage areas (permanent and temporary)
- size, capacity and function of the various types of garbage and recycling storage rooms (permanent and temporary)
- location and dimensions (including height) of the waste and recycling pick up areas
- location, dimensions, door sizes, maneuvering and turning radii of the access routes to the waste and recycling pick up areas

The overlay plan should demonstrate that the developer has addressed all regulations and design requirements, provide a clear overview of how the design provides for effective garbage and recycling services and addresses the District's goals and objectives for waste management in multi-family and commercial buildings.

9 Complete and submit the technical specifications attachment

The attached garbage and recycling storage space and access technical specifications checklist (attachment 7) is easily completed and will help you determine the following:

- size of recycling storage space
- size of combined recycling, organics, and garbage storage space
- location of recycling storage space
- design of recycling, organics, and garbage storage space
- temporary staging area for collection
- loading area
- vehicle access route to loading area
- occupant access to storage area



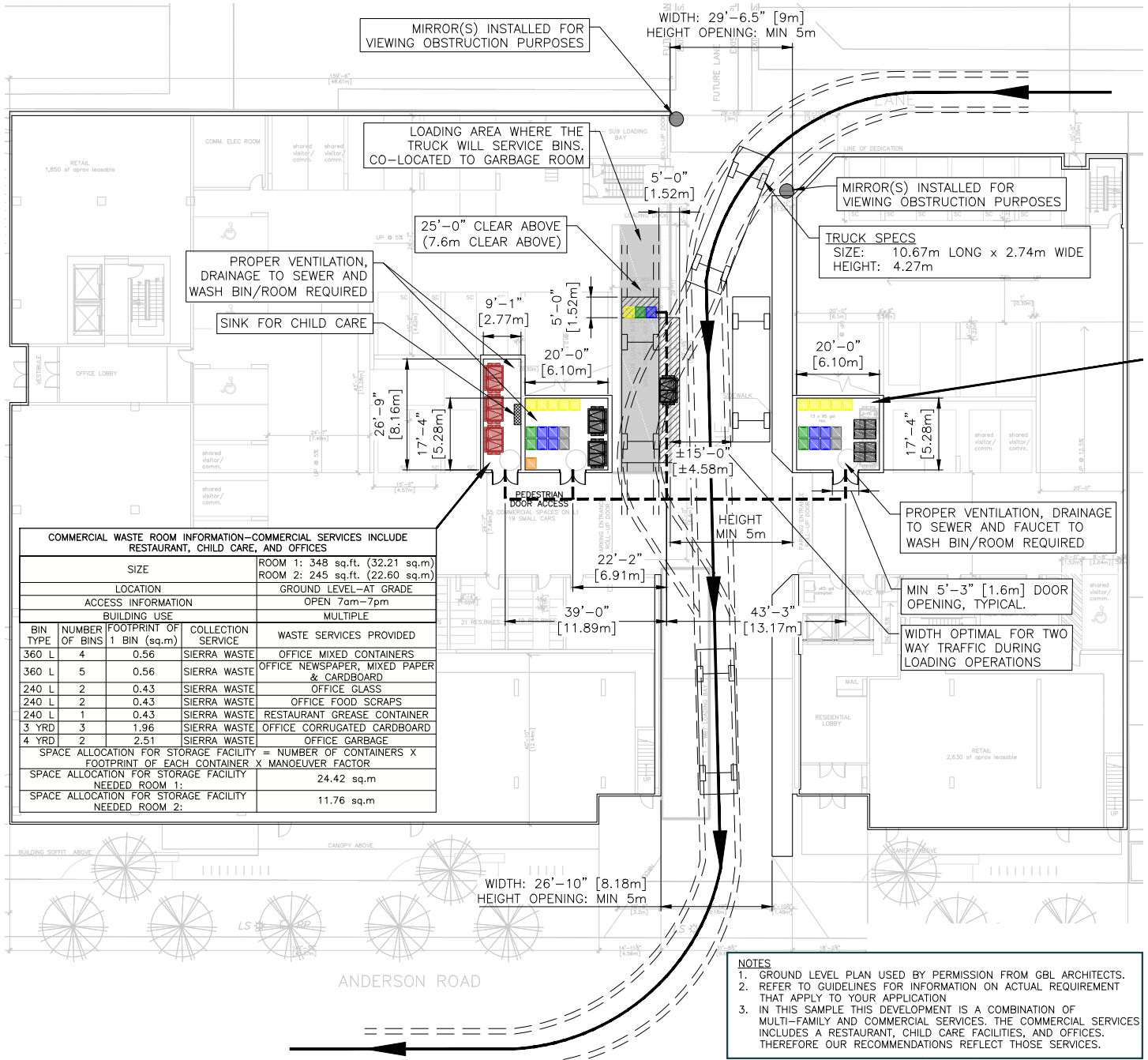
10 Streetside garbage and recycling requirements

Three-stream streetside recycling bins have been installed in business areas throughout West Vancouver. These multi-purpose streetside bins feature recycling options for paper and containers, as well as traditional garbage collection. The District has done extensive research and found these bins to be the most effective.

Installing these bins as part of your new development will help maintain consistency throughout the community, keeping litter off our streets and recyclables out of the landfill.

- MODEL: Hazelton 3
- MANUFACTURE: Envirozone
- DETAILED CUT SHEET: attachment 8

ATTACHMENT 1 WASTE MANAGEMENT OVERLAY PLAN



COMMERCIAL WASTE ROOM INFORMATION—COMMERCIAL SERVICES INCLUDE RESTAURANT, CHILD CARE, AND OFFICES			
SIZE	ROOM 1: 348 sq.ft. (32.21 sq.m)	ROOM 2: 245 sq.ft. (22.60 sq.m)	
LOCATION	GROUND LEVEL—AT GRADE		
ACCESS INFORMATION	OPEN 7am–7pm		
BUILDING USE	MULTIPLE		
BIN TYPE	NUMBER OF BINS	FOOTPRINT OF 1 BIN (sq.m)	COLLECTION SERVICE
360 L	4	0.56	SIERRA WASTE
360 L	5	0.56	SIERRA WASTE
240 L	2	0.43	SIERRA WASTE
240 L	2	0.43	SIERRA WASTE
240 L	1	0.43	SIERRA WASTE
3 YRD	3	1.96	SIERRA WASTE
4 YRD	2	2.51	SIERRA WASTE
WASTE SERVICES PROVIDED			
OFFICE MIXED CONTAINERS			
OFFICE NEWSPAPER, MIXED PAPER & CARDBOARD			
OFFICE GLASS			
OFFICE FOOD SCRAPS			
RESTAURANT GREASE CONTAINER			
OFFICE CORRUGATED CARDBOARD			
OFFICE GARBAGE			
SPACE ALLOCATION FOR STORAGE FACILITY = NUMBER OF CONTAINERS X FOOTPRINT OF EACH CONTAINER X MANOEUVRE FACTOR			
NEEDED ROOM 1: 24.42 sq.m			
NEEDED ROOM 2: 11.76 sq.m			

LEGEND		BIN TYPES	
	TRUCK		CARDBOARD FRONT END CONTAINER
	TRUCK REAR/SIDE LOADER BUFFER		GARBAGE FRONT END CONTAINER
	TRUCK ACCESS		PAPER RECYCLING CART
	TRUCK PATH		MIXED CONTAINERS RECYCLING CART
	FOOT PATH TO LOADING ZONE		GLASS JARS & BOTTLES RECYCLING CART
	LOADING SPACE		FOOD SCRAPS CART
			GREASE CART

ATTACHMENT 2

Guide to estimating the recycling and garbage bins your complex needs for weekly collection

RESIDENTIAL BUILDING

NUMBER OF UNITS 2 residents per unit	MIXED CONTAINERS	MIXED PAPER without a cardboard bin	MIXED PAPER with a cardboard bin	FOOD SCRAPS & YARD TRIMMINGS high participation	CARD-BOARD	GARBAGE moderate recycling	GARBAGE extensive recycling
	360-litre cart (#)			240-litre cart (#)	front-end bins (# x size)		
5-10	1	1	n/a	1	0	1x2 yd ³	1x2 yd ³
11-20	1	2	n/a	1	0	1x3 yd ³	1x2 yd ³
21-30	1	3	1*	1	1x3 yd ³ *	1x4 yd ³	1x2 yd ³
31-40	2	4	1*	2	1x3 yd ³ *	1x6 yd ³	1x3 yd ³
41-50	2	5	2*	2	1x3 yd ³ *	1x8 yd ³	1x4 yd ³
51-60	3	6*	2	3	1x3 yd ³	1x8 yd ³	1x4 yd ³
61-70	3	7*	2	3	1x3 yd ³	2x6 yd ³	1x6 yd ³
71-80	4	8*	3	3	1x3 yd ³	2x6 yd ³	1x6 yd ³
81-90	4	9*	3	4	1x3 yd ³	2x8 yd ³	1x6 yd ³
91-100	4	10*	3	4	1x3 yd ³	2x8 yd ³	1x8 yd ³
101-110	5	11*	3	4	1x3 yd ³	3x6 yd ³	1x8 yd ³
111-120	5	12*	4	5	1x3 yd ³	3x8 yd ³	1x8 yd ³
121-130	6	13*	4	5	1x3 yd ³	3x8 yd ³	1x8 yd ³
131-140	6	14*	4	6	1x4 yd ³	3x8 yd ³	2x6 yd ³
141-150	6	15*	5	6	1x4 yd ³	3x8 yd ³	2x6 yd ³
151-160	7	16*	5	6	1x4 yd ³	4x8 yd ³	2x6 yd ³
161-170	7	16*	5	7	1x4 yd ³	4x8 yd ³	2x6 yd ³
171-180	8	17*	5	7	1x6 yd ³	4x8 yd ³	2x8 yd ³
181-190	8	18*	6	8	1x6 yd ³	4x8 yd ³	2x8 yd ³
191-200	8	19*	6	8	1x6 yd ³	4x8 yd ³	2x8 yd ³
201-210	9	20*	6	8	1x6 yd ³	5x8 yd ³	2x8 yd ³
211-220	9	21*	7	9	1x6 yd ³	5x8 yd ³	2x8 yd ³
221-230	10	22*	7	9	1x6 yd ³	5x8 yd ³	2x8 yd ³
231-240	10	23*	7	9	1x6 yd ³	5x8 yd ³	3x6 yd ³
241-250	11	24*	7	10	1x6 yd ³	5x8 yd ³	3x6 yd ³
251-260	11	25*	8	10	1x6 yd ³	6x8 yd ³	3x8 yd ³
261-270	11	26*	8	11	1x8 yd ³	6x8 yd ³	3x8 yd ³
271-280	12	27*	8	11	1x8 yd ³	6x8 yd ³	3x8 yd ³
281-290	12	28*	9	11	1x8 yd ³	6x8 yd ³	3x8 yd ³
291-300	13	29*	9	12	1x8 yd ³	6x8 yd ³	3x8 yd ³
301-310	13	30*	9	12	1x8 yd ³	7x8 yd ³	3x8 yd ³
311-320	13	31*	9	12	1x8 yd ³	7x8 yd ³	3x8 yd ³
321-330	14	32*	10	13	1x8 yd ³	7x8 yd ³	3x8 yd ³

NUMBER OF UNITS 2 residents per unit	MIXED CONTAINERS	MIXED PAPER without a cardboard bin	MIXED PAPER with a cardboard bin	FOOD SCRAPS & YARD TRIMMINGS high participation	CARD-BOARD	GARBAGE moderate recycling	GARBAGE extensive recycling
	360-litre cart (#)			240-litre cart (#)	front-end bins (# x size)		
331-340	14	33*	10	13	1x8 yd ³	7x8 yd ³	3x8 yd ³
341-350	15	34*	10	14	2x8 yd ³	7x8 yd ³	4x8 yd ³
351-360	15	35*	11	14	2x8 yd ³	8x8 yd ³	4x8 yd ³
361-370	15	36*	11	14	2x8 yd ³	8x8 yd ³	4x8 yd ³
371-380	16	36*	11	15	2x8 yd ³	8x8 yd ³	4x8 yd ³
381-390	16	37*	12	15	2x8 yd ³	8x8 yd ³	4x8 yd ³
391-400	17	38*	12	16	2x8 yd ³	9x8 yd ³	4x8 yd ³
401-410	17	39*	12	16	2x8 yd ³	9x8 yd ³	4x8 yd ³
411-420	18	40*	12	16	2x8 yd ³	9x8 yd ³	4x8 yd ³
421-430	18	41*	13	17	2x8 yd ³	9x8 yd ³	4x8 yd ³
431-440	18	42*	13	17	2x8 yd ³	9x8 yd ³	4x8 yd ³
441-450	19	43*	13	17	2x8 yd ³	10x8 yd ³	5x8 yd ³
451-460	19	44*	14	18	2x8 yd ³	10x8 yd ³	5x8 yd ³
461-470	20	45*	14	18	2x8 yd ³	10x8 yd ³	5x8 yd ³
471-480	20	46*	14	19	2x8 yd ³	10x8 yd ³	5x8 yd ³
481-490	20	47*	14	19	2x8 yd ³	10x8 yd ³	5x8 yd ³
491-500	21	48*	15	19	2x8 yd ³	11x8 yd ³	5x8 yd ³

NOTE: Confirm glass collection with your hauler. Glass is only accepted at depots in some municipalities.

* Denotes where it is more space efficient to use an alternative way of storing paper and cardboard, but you or your recycling hauler may choose either approach to suit your operational needs.

ASSUMPTIONS:

1. once per week collection pick-up schedule
2. an average of two persons occupying each unit
3. there are no on-site compactors (e.g. garbage, cardboard, recycling)
4. some residents flatten their containers and cardboard boxes before putting them in the bin
5. sufficient height clearance is available for garbage collectors to tip the bins

NOTES

- complexes with very active recycling communities will require more recycling bins
- due to their height and weight, 6 to 8 cubic yard bins should only be used where bins are stored outside and easily accessible for collection
- for efficient use of space, a garbage compactor and a cardboard compactor are suggested for large complexes greater than 240 units
- consult with a recycling and waste hauler to assist with estimating the number and size of containers required

Courtesy of Metro Vancouver.

HOSPITALITY LODGING

NUMBER OF GUEST ROOMS	MIXED CONTAINERS	MIXED PAPER including newspaper	FOOD SCRAPS & YARD TRIMMINGS	CARDBOARD BIN	GARBAGE	GREASE / TALLOW
	360-litre cart (#)		240-litre cart (#)	front-end bins (# x size)		18.6-litre jug-in-box
1-10	1	1	1	1x3 yd ³	1x3 yd ³	1
11-20	1	1	2	1x3 yd ³	1x3 yd ³	1
21-30	1	1	3	1x3 yd ³	1x3 yd ³	1
31-40	1	1	4	1x3 yd ³	1x3 yd ³	1
41-50	1	1	4	1x3 yd ³	1x3 yd ³	1
51-60	1	2	5*	1x3 yd ³	1x3 yd ³	1
61-70	1	2	6*	1x3 yd ³	1x4 yd ³	1
71-80	1	2	7*	1x3 yd ³	1x4 yd ³	1
81-90	1	2	8*	1x3 yd ³	2x3 yd ³	2
91-100	1	3	9*	1x3 yd ³	2x3 yd ³	2

If compostable food scraps and yard trimmings container(s) are provided, garbage container capacity should decrease accordingly.

* It is more space efficient to use bins at this point. Please consult with a waste services provider to discuss which containers are suitable.

OFFICE

FLOOR AREA (M2)	MIXED CONTAINERS	MIXED PAPER including newspaper	FOOD SCRAPS & YARD TRIMMINGS	CARDBOARD BIN	GARBAGE
	360-litre bins (#)		240-litre bins (#)	cubic-yard bins (# x size)	
1-500	1	1	1	1x3 yd ³	1x3 yd ³
501-600	1	1	2	1x3 yd ³	1x3 yd ³
601-900	1	2	2	1x3 yd ³	1x3 yd ³
901-1,000	1	2	3	1x3 yd ³	1x3 yd ³
1,001-2,000	2	4	5*	1x3 yd ³	1x3 yd ³
2,001-3,000	3	6*	7*	1x3 yd ³	1x4 yd ³
3,001-4,000	4	7*	10*	1x3 yd ³	2x3 yd ³
4,001-5,000	5*	9*	12*	1x4 yd ³	2x3 yd ³

* It is more space efficient to use bins at this point. Please consult with a waste services provider to discuss which containers are suitable.

Courtesy of the City of Vancouver.

RETAIL

FLOOR AREA (M2)	MIXED CONTAINERS	MIXED PAPER including newspaper	CARDBOARD BIN	GARBAGE
	360-litre cart (#)		front-end bin (# x size)	
1-200	1	1	1x3 yd ³	1x3 yd ³
201-500	1	2	1x3 yd ³	1x3 yd ³
501-600	1	3	1x3 yd ³	1x3 yd ³
601-700	2	3	1x3 yd ³	1x3 yd ³
701-1,000	2	4*	1x3 yd ³	1x3 yd ³
1,001-2,000	4*	9*	2x3 yd ³	2x3 yd ³
2,001-3,000	6*	13*	3x3 yd ³	2x4 yd ³
3,001-4,000	7*	17*	3x3 yd ³	3x3 yd ³
4,001-5,000	9*	21*	4x4 yd ³	3x4 yd ³

* It is more space efficient to use bins. Please consult with a waste services provider to discuss which containers are suitable.

RESTAURANT

FLOOR AREA (M2)	MIXED CONTAINERS	MIXED PAPER including newspaper	FOOD SCRAPS & YARD TRIMMINGS	CARDBOARD BIN	GARBAGE	GREASE / TALLOW
	360-litre cart (#)		240-litre cart (#)	front-end bin (# x size)		18.6-litre jug-in-box
1-100	1	1	1	1x3 yd ³	1x3 yd ³	1
101-200	1	1	2	1x3 yd ³	1x3 yd ³	1
201-300	2	2	3	1x3 yd ³	1x3 yd ³	1
301-400	2	3	4	1x3 yd ³	1x3 yd ³	1
401-500	3	3	4	1x3 yd ³	1x3 yd ³	1
501-600	4*	4*	4	1x3 yd ³	1x3 yd ³	1
601-700	5*	5*	6*	1x3 yd ³	1x3 yd ³	2
701-800	5*	5*	7*	1x4 yd ³	1x3 yd ³	2
801-900	5*	5*	8*	1x4 yd ³	1x3 yd ³	2
901-1,000	6*	6*	9*	1x4 yd ³	1x3 yd ³	2
1,001-2,000	11*	12*	17*	3x4 yd ³	1x4 yd ³	4
2,001-3,000	17*	17*	17*	4x4 yd ³	2x4 yd ³	6
3,001-4,000	22*	23*	34*	5x4 yd ³	2x4 yd ³	8
4,001-5,000	28*	29*	42*	6x4 yd ³	3x4 yd ³	11

If compostable food scraps and yard trimmings container(s) are provided, garbage container capacity should decrease accordingly.

* It is more space efficient to use bins at this point. Please consult with a waste services provider to discuss which containers are suitable.

Courtesy of the City of Vancouver.

ATTACHMENT 3

Container measurements and storage space required

TYPE	HEIGHT	LENGTH	WIDTH	FOOTPRINT <i>length x width</i>	MANOEUVRE FACTOR	STORAGE AREA REQUIRED FOR ONE CONTAINER <i>footprint x manoeuvre factor</i>
3 yd ³ front-end top loading	1.22 m (4')	1.07 m (3.5')	1.83 m (6.0')	1.96 m ²	2.25	4.41 m ²
4 yd ³ front-end top loading	1.22 m (4')	1.37 m (4.5')	1.83 m (6.0')	2.51 m ²	2.25	5.64 m ²
6 yd ³ front-end top loading	1.52 m (5')	1.68 m (5.5')	1.83 m (6.0')	3.07 m ²	2.25	6.91 m ²
46.5 L cart*	0.69 m (2.25')	0.30 m (1')	0.28 m (0.92')	0.084 m ²	n/a	n/a
80 L cart*	0.88 m (2.88')	0.51 m (1.67')	0.41 m (1.33')	0.21 m ²	2.25	0.47 m ²
120 L cart*	0.95 m (3.13')	0.55 m (1.79')	0.48 m (1.58')	0.26 m ²	2.25	0.59 m ²
240 L cart*	1.09 m (3.58')	0.70 m (2.29')	0.62 m (2.04')	0.43 m ²	2.25	0.97 m ²
360 L green cart*	1.13 m (3.71')	0.88 m (2.88')	0.64 m (2.08')	0.56 m ²	2.25	1.26 m ²
360 L blue cart*	1.18 m (3.88')	0.8 m (2.58')	0.71 m (2.3')	0.58 m ²	2.25	1.28 m ²
blue box*	0.37 m (1.22')	0.52 m (1.71')	0.40 m (1.3')	0.21 m ²	n/a	n/a
glass recycling bin*	0.31 m (1.17')	0.40 m (1.31')	0.30 m (0.98')	0.12 m ²	n/a	n/a
mixed paper recycling bag*	0.66 m (2.17')	n/a	0.46 m (1.5')	n/a	n/a	n/a

FRONT-END TOP LOADING CONTAINER: ADDITIONAL DIMENSIONS

The dimensions noted above reflect the internal measurement of the container.

Please allow for an additional 20.32 cm (8") in width for the side brackets on the container.

COMPACTORS

Garbage compactors range in size from 4 yd³ to 25 yd³ and connect to various sizes of front-end bins. Models have different space and location requirements. Consult a private service provider for details.

Useful conversion factors

Volume:

- 1 gallon = 0.134 cubic feet
- 1 cubic meter = 35.5 cubic feet
- 1 cubic yard = 764.6 litres
- 3 cubic yard = 6 x 360 L cart

Weight:

- 1 tonne = 1,000 kg
- 1 pound = 0.454 kg

Distance:

- 1 metre = 3.28 feet

Area:

- 1 square metre = 10.76 square feet

ATTACHMENT 4

General specifications for different waste containers

The following is a general overview of the various waste containers commonly used for solid waste storage.

The District does not guarantee the accuracy of the dimensions listed below due to the variation between different manufacturers. It is the sole responsibility of the designer to ensure the design of the storage facility can accommodate the waste containers to be used. Please consult with a private contractor to discuss which containers are suitable for different applications.

1. COMPACTOR

TYPE	IDEAL USER	MINIMUM CEILING HEIGHT CLEARANCE	MINIMUM CLEARANCE IN FRONT OF BIN	MINIMUM CLEARANCE OVERHEAD OF BIN
low-profile compactor	multi-family buildings	2.1 m	12.2 m long	
ground-level compactor	multi-family, commercial, and institutional buildings	2.5 m	15.2 m long	7 m high
commercial compactor	commercial and institutional buildings	6.1 m	15.2 m long	

POTENTIAL BENEFITS

- less servicing frequency required compared to other container use
- can store more volume when compacted
- less messy; less overflow
- ideal for large volume generation (more than 100 units)
- long life span (15–20 years) if properly maintained

POTENTIAL CHALLENGES

- cardboard jams easily if not placed in compactor correctly
- odour concern if not serviced frequently
- not suitable for food scraps collection
- requires electricity, drainage; extra cost required
- noise/vibration concerns —may need isolator to lessen
- capital cost may be higher than other types of bins
- underground storage may have limited space for truck maneuvering
- must carry entire compactor container back and forth to dispose waste; limited number of servicing per collection route
- everyone must be trained to operate the compactor
- not eligible for Leadership in Energy and Environmental Design® (LEED) points





2. CART

MINIMUM CONCRETE PAD AREA	IDEAL USER	MINIMUM CEILING HEIGHT CLEARANCE	MINIMUM CLEARANCE IN FRONT	MINIMUM CLEARANCE OVERHEAD
0.88 x 0.64 m	n/a	2.5 m	n/a	5.29 m high

POTENTIAL BENEFITS

- smallest footprint compared to a front-end bin or a compactor
- less expensive than a front-end container or a compactor
- sealed container; drainage is not a major concern
- no electricity required to operate
- easier to manoeuvre than large containers

POTENTIAL CHALLENGES

- requires high service frequency compared to larger containers
- odour may be a concern if not routinely serviced
- can easily be vandalized or stolen



3. FRONT-END CONTAINER

MINIMUM CONCRETE PAD AREA	IDEAL USER	MINIMUM CEILING HEIGHT CLEARANCE	MINIMUM CLEARANCE IN FRONT OF CONTAINER	MINIMUM CLEARANCE OVERHEAD OF CONTAINER
1.07 x 2.03 m	n/a	2.5 m	n/a	6.9 m high

POTENTIAL BENEFITS

- applicable for most waste streams, including cardboard and food scraps
- capital cost less than a compactor
- ideal for less than 100 units
- no electricity required to operate
- easily accessible for most occupants

POTENTIAL CHALLENGES

- require more collection frequency compared to compactors
- odour concern if not serviced frequently
- surface damage to concrete pad due to frequent collection
- may cost more than compactor when extra service costs are included

Temporary storage facility location

Temporary storage facilities are areas where containers are placed during the time of collection; these are not areas for waste disposal to occur.

Temporary storage facilities are recommended when the garbage and recycling storage area is more than 30 m from the loading area because some haulers will not walk more than 30 m from their collection vehicle to access containers. If a temporary storage facility is needed, the Waste Management Overlay Plan should illustrate the location, size and intended pathway to the area.

Considerations for temporary storage facilities:

- have a level and hard surfaced floor to withstand the weight of the waste and be easily cleaned
- be located at ground level within 30 m of the loading area to facilitate collection
- be connected to the loading area and garbage and recycling storage space via a level grade or continuous slope of no more than 6%; a gradient of more than 6% would make it challenging to facilitate movement of wheeled containers
- have a footprint equal to at least 50% of the garbage and recycling storage space allocation; this space should be used for waste container storage and, therefore, a smaller area than the loading area is sufficient
- be configured such that no horizontal dimension (width or depth) is less than 1 m to allow for access for waste containers

ATTACHMENT 6

Common solutions for barriers to multi-family waste reduction & diversion

Since every development is different, it's important for developers to identify specific challenges for their building and develop solutions that will make it easier for building occupants to maximize recycling and reduce landfill waste. Some of the barriers that a developer (or occupant) may have to overcome include the following:

Size of storage locations

It's important to allow enough space for multiple types of recycling bins. Additionally, it is important that all bins are in one location, because it can be inconvenient for occupants if recyclables, food scraps and/or garbage are stored in different locations within the building complex due to lack of space.

Clearance requirements

Collection vehicles require additional height, length, and width when dumping materials from carts or containers into the vehicle.

Language difficulties

Many people may not understand posters and information written in English.

Ambiance of waste storage locations

When waste storage areas are poorly lit, odorous, or inconvenient to access, they can deter occupants from properly sorting their recyclables.

Temporary tenants

People that live in apartments and condos tend to move more than people that live in houses. Recycling programs in each development can be different so it takes some time for occupants to learn how to properly manage their waste.

Product stewardship and banned materials

Building occupants may not have access to a vehicle to transport stewardship and landfill-banned materials to proper disposal facilities.

Some common solutions for these barriers include the following:

- Design and designate a centralized location within the complex so that there is a one-stop disposal for all waste materials.
- Create areas that promote recycling and food scrap programs. This includes putting large and updated signs on and near containers that use images to explain what can and cannot go into them. Ensure that signs are laminated or protected from the elements and posted in well-lit areas.
- Ensure bright lighting in waste storage areas so that users can see signage and containers for proper sorting and for security.
- Enlarge the storage area to improve accessibility for collection crews and occupants. Ensure that the dimensions of the access route are large enough for collection vehicles.
- Empty and clean carts frequently to reduce odours and deter pests.
- Build a sense of community within the building and incorporate community swap/re-use stations into the design. Include space for tenants to add additional waste streams (e.g. stewardship and banned materials) for additional waste diversion measures and to tailor the waste diversion program to the needs of the development.
- Promote waste diversion programs to help reduce the amount of garbage generated by making food scraps and recycling easier for occupants. This may require decreasing the size of the garbage bin to create more space in the designated waste storage area, but it may save the building money by reducing garbage disposal fees.

ATTACHMENT 7 TECHNICAL SPECIFICATIONS CHECKLIST

Garbage and recycling storage space and access checklist for NEW construction projects

1.0 SIZE OF RECYCLING STORAGE SPACE										
	A		B	C	D	E	F	G	compliant?	
select all development types that apply	building size		recycling storage space (m ²) = column A x factor	flex space for bulky item storage = 0.5 x column B	maximum space requirement <i>(circle the space that applies based on development type and building size)</i>	total storage space required (m ²) = smaller of columns B + C or column D	storage space provided (m ²)	circle below if storage space (column F) is greater than minimum required	yes	no
<input type="radio"/> multi-family		units	x 0.160 + 5 =		60 m ² for hospitality lodging			> 5.0 m ²		
<input type="radio"/> retail		m ²	x 0.014 + 3 =	n/a	25 m ² (or 60 m ² if column A is over 5500 m ²)			> 5.0 m ²		
<input type="radio"/> office		m ²	x 0.007 + 3 =	n/a	50 m ² (or 60m ² if column A is over 40,000 m ²)			> 5.0 m ²		
<input type="radio"/> large venue		m ²	x 0.019 + 4 =	n/a	50 m ² (or 60 m ² if column A is over 11,000 m ²)			> 5.0 m ²		
<input type="radio"/> restaurant		m ²	x 0.030 + 7 =	n/a	40 m ² (or 60 m ² if column A is over 5500 m ²)			> 9.0 m ²		
1.1 SIZE OF COMBINED GARBAGE AND RECYCLING STORAGE SPACE										
	A		B	C	D	E	F	G	compliant?	
select all development types that apply	building size		garbage and recycling storage space (m ²) = column A x factor	flex space for bulky item storage = 0.5 x column B in Table 1.0	maximum space requirement <i>(circle the space that applies based on development type and building size)</i>	total storage space required (m ²) = smaller of columns B + C or column D	storage space provided (m ²)	circle below if storage space (column F) is greater than minimum required	yes	no
<input type="radio"/> multi-family		units	x 0.310 + 8 =		101 m ² for hospitality lodging			> 9.5 m ²		
<input type="radio"/> retail		m ²	x 0.0182 + 3.7 =	n/a	41 m ² (or 101 m ² if column A is over 5500 m ²)			> 10.0 m ²		
<input type="radio"/> office		m ²	x 0.0089 + 3.3 =	n/a	66 m ² (or 101 m ² if column A is over 40,000 m ²)			> 10.0 m ²		
<input type="radio"/> large venue		m ²	x 0.0244 + 6 =	n/a	66 m ² (or 101 m ² if column A is over 11,000 m ²)			> 10.0 m ²		
<input type="radio"/> restaurant		m ²	x 0.0331 + 6.8 =	n/a	40 m ² (or 60 56 m ² (or 101 m ² if column A is over 5500 m ²)			> 14.0 m ²		

2.0 LOCATION OF RECYCLING STORAGE SPACE**X****2.1 The location of the centralized recycling storage space(s) must be:**

- a) on the lot of the structure served;
- b) in an area such that noise and odour impacts to building occupants and neighbouring developments are minimized;
- c) at ground level, or no more than one storey below grade; and
- d) adjacent to each of the designated garbage storage areas for each type of use in the development.

2.2 A centralized recycling storage space shall not be located in any of the following positions:

- a) alleys or publicly owned rights-of-way where it may disrupt traffic circulation patterns;
- b) between a street-facing façade of the structure and the street if the area is located outdoors;
- c) in any required driveways, parking aisles, or parking spaces for the structure; and
- d) in any location that may block or impede fire exits, public rights-of-ways, or pedestrian and vehicular access.

3.0 DESIGN OF GARBAGE AND RECYCLING STORAGE SPACE**3.1 The garbage and recycling storage space must:**

- a) have a level and hard surfaced floor;
- b) be configured to allow each garbage and recycling storage container to be individually accessible so as to be removed and replaced without having to take out other containers;
- c) be configured such that no horizontal dimension (width or depth) is less than 2 m;

Does your commercial or multi-family development have 25 or more units?

If yes, answer 3.1 d.

If no, skip 3.1 d.

- d) have an entry point no less than 1.5 m in width;
- e) ensure adequate ventilation to the exterior of the building, in compliance with applicable building code requirements for the storage of garbage;
- f) be sufficiently secure to minimize pest and wildlife access through the use of roofs, fencing, and wheels under gate doors;

Is your development located indoors?

If yes, answer 3.1 g-i.

If no, skip g-i.

- g) be protected from unlawful entry through the use of strike-plates, locks, and astragals to close clearance gaps between doors and frames;
- h) be well lit, both as a security measure and for ease of access;
- i) have windows, as well as white or pale-coloured interior walls, to enhance lighting and safety, if the storage area is enclosed; and
- j) have access to a covered washing area with a sanitary sewer drain and water supply.

4.0 TEMPORARY STORAGE AREA**4.1 Is your garbage and recycling storage space more than 50 m from the recycling loading area?**

If yes, a temporary storage area with the properties listed in section 4.1 a–f is required for use on collection days.

If no, check compliance with loading area (section 5.0) and vehicle access route to loading area (section 6.0).

If not compliant, a temporary recycling storage area could be used to provide access to a different, compliant loading area.

If compliant, skip section 4.1 a–f.

- a) have a level and hard surfaced floor;
- b) be configured such that no horizontal dimension (width or depth) is less than 1 m;
- c) be located at ground level within 50 metres of the loading area to facilitate collection;
- d) be connected to the loading area and garbage and recycling storage space via a level grade or continuous slope of no more than 6%;
- e) have a footprint equal to at least 50% of the garbage and recycling storage space allocation; and
- f) be available for garbage and recycling container storage on the day of collection, but may be used for other purposes at other times.

5.0 LOADING AREA

5.1 The loading area for the collection vehicle to service one refuse or recycling storage container at a time must meet the following minimum design criteria:

- a) be located away from the fresh air intakes for the building; and
- b) be connected to the garbage and recycling storage space or temporary storage area via a level grade or continuous slope of no more than 6%, to facilitate movement of wheeled containers from the garbage and recycling storage space or temporary storage area to the loading area for servicing.

5.2 Is your loading area located on the building site?

If yes, you must meet 5.2 a-d.

If no, the District does allow loading on publicly-owned land on collection day.

Note: The District does allow use of publicly-owned land for temporary storage of totes and bins on collection day.

- a) be directly accessible by a driving surface meeting the vehicle access route specifications;
- b) have an appropriate slope as per applicable building code requirements, to facilitate drainage to the designated stormwater management system for the site and to avoid settling of liquids within the loading area;
- c) be constructed to accommodate the weight of a 28-tonne collection vehicle;
- d) maintain minimum dimensions of 7.5 m high, 6.0 m wide, and 15.0 m long. All dimensions are to be unencumbered (i.e., unrestricted by fixtures such as sprinkler systems, meters, surveillance cameras, mirrors, landscaping, etc.).

6.0 VEHICLE ACCESS ROUTE TO LOADING AREA

6.1 Is your loading area located on the building site?

If yes, you must meet all requirements of sections 6.2 and 6.3.

Note: These specifications are intended for collection from centralized loading areas. Check with the District for vehicle access route requirements applicable to collection from individual units.

If no, the District does allow loading on publicly-owned land on collection day. If allowed and if the loading area complies with section 6.2, then skip section 6.3.

6.2 The vehicle access area must be located such that collection vehicles are not required to reverse onto a public road.

6.3 The vehicle access route, whether intended to be indoors or outdoors, must:

- a) be configured in such a way as to allow a collection vehicle to drive up to the loading area, collect the garbage or recycling, and leave the site in a forward motion or via the use of a turnaround area allowing for a three-point turn of not less than one truck length;
- b) be situated in a location that will minimize interface with pedestrian traffic and public vehicular access to the building's main parking area, including underground
- c) be constructed to accommodate the weight of a 28-tonne collection vehicle;
- d1) provide a minimum width of 4.5 m throughout the vehicle access route;
- d2) provide access driveways with a minimum width of 6 m at the points of entrance and exit for the site;
- e) maintain a minimum vertical clearance of 4.4 m throughout the entire access route;
- f) provide the collection vehicle a minimum turning radius of 12.5 m throughout the entire access route; and
- g) ensure that the slope of the access route does not exceed 6%.

6.4 The site plan must include a diagram illustrating the anticipated movement of the collection vehicle through the building site, including dimensions for minimum width, height and turning radii throughout.

6.5 Where the Official Community Plan or other regulatory instruments used by the District indicate a preference for particular access configurations, the development proponent should indicate how any additional configuration requirements stemming from these technical specifications will be met.

7.0 OCCUPANT ACCESS

7.1 The garbage and recycling storage space must be accessible to all occupants of the development, including those with restricted mobility.

7.2 The occupant access provisions of the garbage and recycling storage space must be shown on the site plan.

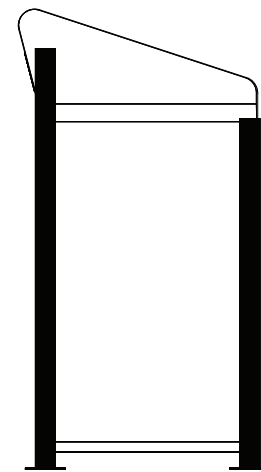
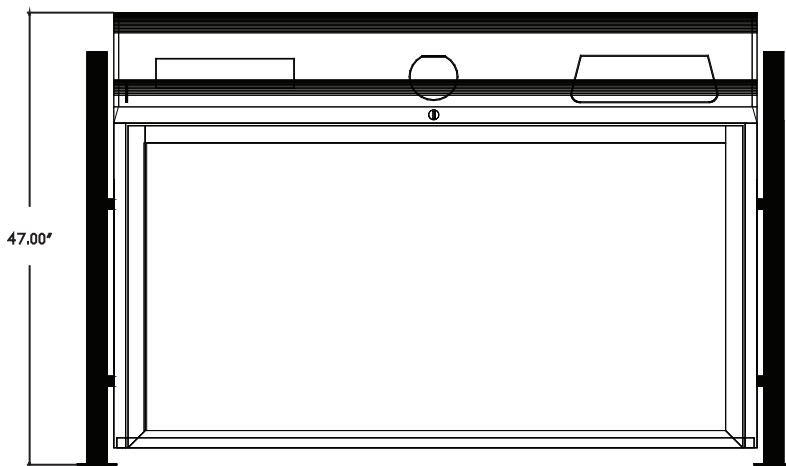
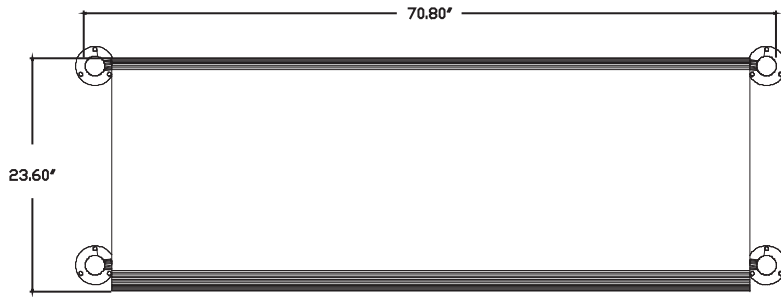
7.3 The distance that occupants must travel to reach the recycling storage space must be similar to the distance traveled to reach the garbage containers.

ATTACHMENT 8

Streetside recycling requirements

Hazleton, 3 Stream Recycling Unit EL - 003

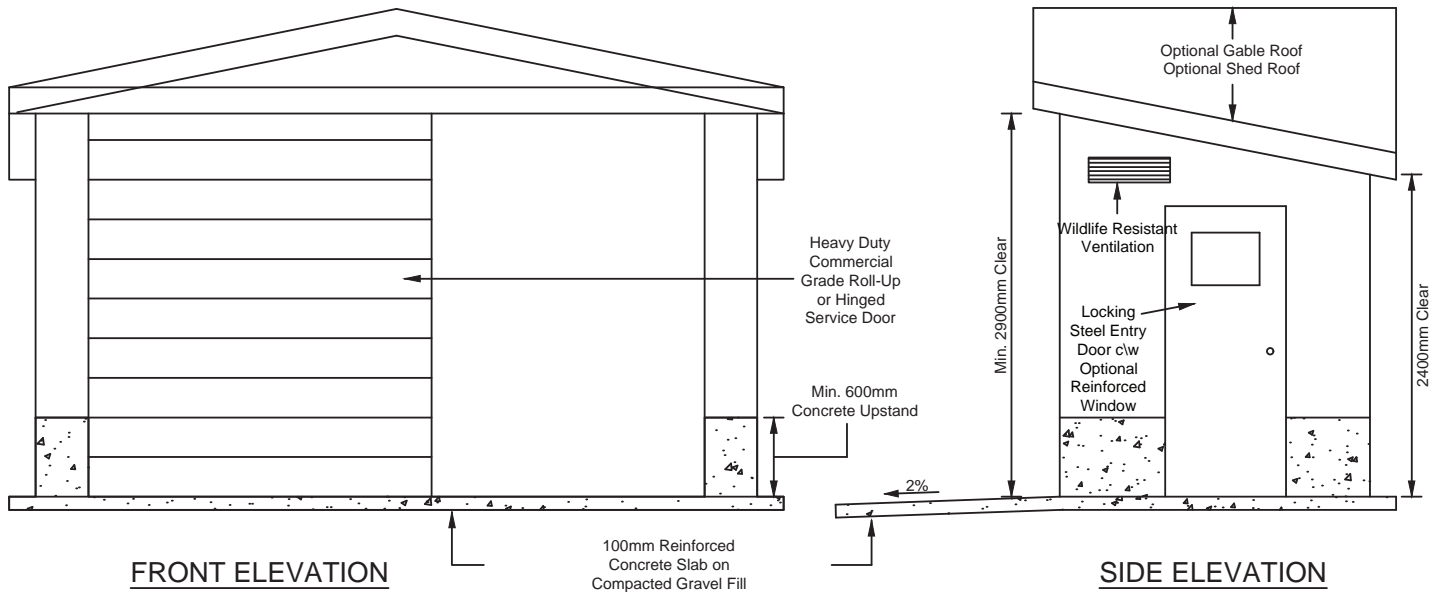
PRODUCTION ITEM CODE: EL - 003
1.866.362.5400 | envyrozone.com



- **MODEL:** EL -003 S / P
- **MATERIAL:** S - stainless steel
P - zinc plated steel
inside: satin coat
- **FINISH:** brushed stainless finish
or powder coated finish
- **LINER:** AC-001(05-02-07)
19 x 19 x 28" plastic liner
capacity: 147litre/39USgal
material: polyethylene
- **DIMENSIONS:** 23.6 (d) x
70.8 (w) x
47" (h) approx.
- **OPENINGS:** newspaper
2.9 x 14"
cans & bottles
5.4" diameter
litter only
3.9 x 14.9"
- **LOCK:** cam style mechanism
with key
- **WEIGHT:** approximately 300 lbs.
- **INSTALLATION:** bolted down or free standing
- **BOARD MESSAGING:** area per single face
60.50 x 31.50"

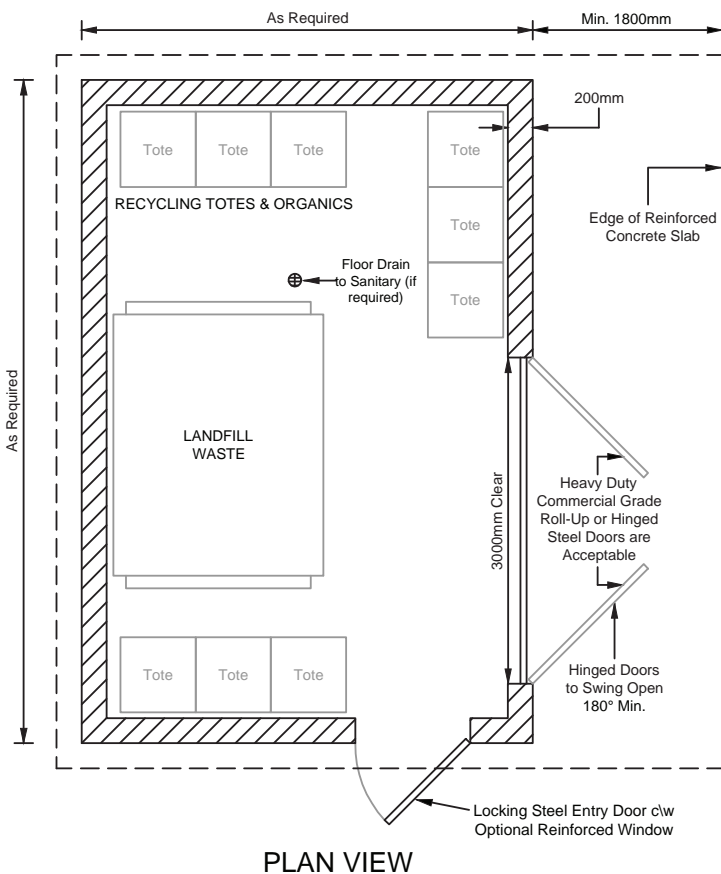
ATTACHMENT 9

Wildlife-proof enclosure guidelines



NOTES:

1. Enclosure architecture (materials, etc) is to conform to Municipal Building and Development Permit requirements (as required).
2. Design concept only. Alternative designs meeting the intent of these requirements are invited.
3. Structures are to be constructed in accordance with the BC Building Code. Enclosures are to be designed to withstand snow loading, vehicular damage, operational damage, and bears.
4. Roofs should be designed to avoid snow shed in front of service and entry doors.
5. Service door(s) are to have dual locking mechanisms. Hinged doors require a heavy-duty cane bolt at the bottom and a slide bolt at the top of the stationary door. Roll-up doors require slide bolt locking mechanisms on the bottom of the door, each side. All locking mechanisms to be located on the interior; no hardware should be located on the service door(s) exterior.
6. Steel entry door is to be 36" wide (915mm) and be equipped with a self-closing mechanism. Door may have a round turning knob complete with a covered keyed knob guard on the exterior for access and panic hardware on interior for egress. Alternatively a push button lock with a turning knob is acceptable.
7. Adequate motion activated interior and exterior lighting is to be provided (if required).
8. Bear proof vent and steel entry door window openings should be sized such that a bear could not gain access in the case of breakage.
9. Units in mm unless otherwise noted.
10. Roll-up doors are preferable in areas that may have ice and snow build up but hinged doors are acceptable.
11. Separate enclosures for Commercial & Residential uses on the same property are strongly recommended.



Dimensions shown serve as a guideline only, the ultimate size and configuration of the garbage enclosure will be dependant on the owners preference and services being provided.



SHOW HOME OPEN
SAT & SUN FROM 1:00-4:00
(or by appointment)

Quintet townhomes



.....there are only five.

www.quintet5.com • 604.760.7121

Developed by: Westpointe/Chesley Avenue Homes Ltd. • Managed by: Rob Smith, RE/MAX, Markers Realty
Risk Consultant: THE BNA Group
Resale only. Not all units available.

Quintet

SHOW HOME

17th & DUCHESS

District of West Vancouver
750 17th Street, West Vancouver BC V7V 3T3
604-925-7176 | westvancollect@westvancouver.ca
westvancouver.ca/collection