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669-683 Old South Head
Road, Vaucluse, NSW

Operational Waste Management Plan

July 2024

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1 Introduction

This Waste Management Plan (WMP) has been prepared by Waste Audit and Consultancy Services ('Waste Audit') for Vaocluse Holdings Private Limited for the proposed development of a seniors living apartment building at 669-683 Old South Head Road, Vaocluse, NSW, to provide guidance on expected operational general waste and recycling volumes; storage area requirements; bins and equipment; site and contractor handling and collection practices, and management systems and responsibilities.

In calculating total operational volumes of general waste and recycling, we have taken into account all areas and functions of the development that will produce general waste and recycling as a guide to calculating future volumes of materials.

Residential general waste and recycling volumes (per week) have been calculated based on apartment numbers and standard generation rates. Communal and wellness waste generation rates have been taken from the *Waverley DCP Amendment 9 Part B – General Provisions*.

2 Tenancy Breakdown

The proposed development will consist of the following area types that will produce operational general waste and recyclable items; areas such as plant and storage rooms that produce only minimal and/or infrequent quantities have been excluded from calculations.

Tenancy Type	No/ Area	Generation Factors		
		General Waste	Paper/ Card	Recycling
Dwellings +2 Bd	31 apt	120L/apartment/week	60L/apartment/week	60L/apartment/week
Communal	1,128	10L/100m ² floor area/day		10L/100m ² floor area/day
Retail	225	50L/100m ² floor area/day		25L/100m ² floor area/day

Table 1: Waste Generation Factors

3 Expected Materials Streams

The development is expected to produce the following operational materials streams:

Material Stream	Tenancy Type
General Waste	All Tenancies
Mixed Recycling	All Tenancies
Paper and Cardboard	Residential Tenancies

Each of these streams will require different operational management practices depending on the type of tenancy. Recommended systems are detailed in Section 6 of this report.

4 Operational General Waste & Recycling

The tables below show daily volumes of materials that will be generated by the development, based on standard generation rates for the residential dwellings.

In preparing this plan, we have also taken into consideration Waverley Council's *Development Control Plan 2012*.

General waste and recycling from the residential dwellings and communal kitchen will be stored between four separate waste storage rooms on the Basement Floor. These will be transferred to the main bin rooms (Appendix A bin movement pathway). Each habitable floor will have access to the lift leading to the Garbage Room of each lobby, that will allow storage of

recyclables for a week as well as access to a garbage chute that will deposit residual waste into the designated lobby waste storage rooms in the Basement. It is recommended that residential general waste and recycling is collected by a private waste contractor.

The tables below show expected volumes of materials, numbers and sizes of bins, collection frequencies, and storage area requirements. Total bin footprints include 20% space allowance between bins for access and handling within storage areas.

4.1 General Waste & Recycling - Bins & Servicing Frequencies

The table below shows the *minimum* combined bin numbers, sizes, and collection frequencies for the residential dwellings. The bin sizes shown are in litres; total bin footprints are in square metres. Bin footprints include an additional 20% allowance for space between bins and movement within the storage room.

Residential	Bins		Collections per week	Weekly Capacity	Weekly Generation	Total Footprint m ²
	Size	No.				
General Waste	660	4	2	5,280	3,720	6.1
Mixed Recycling	660	2	2	2,640	1,860	3.0
Paper and Cardboard	660	2	2	2,640	1,860	3.0
Replacement bins	240	4	-	960	960	2.0
Total		7		10,560	7,440	14.1
Total Storage Room Area						30 m ²

Table 2: Residential Waste.

Retail/ Communal	Bins		Collections per week	Weekly Capacity	Weekly Generation	Total Footprint m ²
	Size	No.				
General Waste	660	2	2	2,640	1,577	3.0
Mixed Recycling	660	1	2	1,320	1,183	1.5
Total		3		3,960	2,760	4.5
Total Storage Room Area						15 m ²

Table 3: Retail and Communal Waste.

Based on the bin sizes shown in the tables above, and the recommended collection frequencies, the storage rooms' current sizes and layouts will be adequate for operational waste storage requirements.

A separate bulk storage has been provided for residential bulky waste items (furniture, bedding, appliances etc.) in the Basement 01 as seen in Appendix A.

4.2 General Waste & Recycling - Bin Transfer & Collection

Residential Waste Requirements:

Waste and recyclables are stored in the bin storage rooms in the designated Garbage Rooms on the Basement 01 Floor as indicated in Figure 1.

Each floor has an allocated lobby and access to a garbage chute, as indicated in Figure 2. Each lobby will have a service lift leading to the Lobby Garbage Rooms, which will also hold 1 x 240L Mixed Recycling and 1 x 240L Paper and Cardboard bin. Residents will be able to access these Garbage Rooms to dispose of their mixed recycling waste. As the recyclable bins reach capacity in each of the Lobby's garbage room, they will be transferred to the Main Waste Storage Rooms in the Basement.

The two main permanent Waste Storage Rooms;

Residential Room A	8 x 660L bins for General Waste 4 x 660L bins for Mixed Recycling 4 x 660L bins for Paper and Cardboard
Retail/ Communal Room B	2 x 660L bins for General Waste 1 x 660L bins for Mixed Recycling 4 x 240L bins for chute replacement bins (high volume times if required)

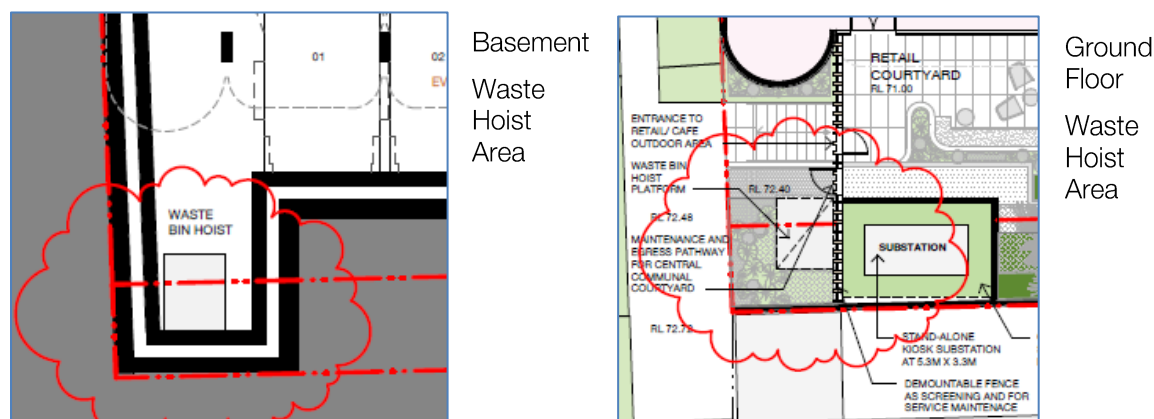
When the bins from each of the Lobby's Garbage Rooms are brought to the main storage room, a bin lifter will be required to transfer the waste from the smaller 240L bins to the 660L bins in a safe manner (Appendix F).

General Waste is captured by a number of garbage chutes that service each lobby area. The chutes will output the waste into designated garbage rooms within the basement where a 660L bin will be stationed within each of the lobby's garbage room.

Once these reach full capacity, they will be replaced with an empty 660L bin stored in Garbage Room A. On the designated collection days, a cleaner or building manager will present all the 660L General Waste bins for collection alongside the Mixed Recycling and Paper and Cardboard.

The private contractor will liaise with the building operators to best manage this. During this period, it is required that the residents' access to the waste chute be temporarily suspended to avoid any waste being disposed into bins that are not available to capture it. Once completed, the building managers/contractors will be responsible to return the bins to their respective waste storage rooms.

A *waste hoist* will be included in the development as a measure that allows council to be able to collect the bins from kerbside in the advent of an interruption to the private collection service.



Retail and Communal Waste Requirements:

Cleaning staff will be responsible for disposing of all waste and recyclables from the Retail and Communal areas in the correct general waste or recycling bins in the correct waste storage areas. The building's private waste contractor will collect these materials on a schedule to be set once the building is operational. The development's cleaning staff will maintain the organisation and cleanliness of the bin storage area and the collection area.

Collections will take place during the early morning and will conform with the Waverley Council's time restrictions for waste collection of twice per week.

Private waste company WasteMini will be contracted to collect the waste from the building (Appendix E). The waste vehicle will be entering the site from Old South Head Road and enter the Basement to collect the waste from the designated parking spot, the WasteMini waste collection vehicle will be suitable for accessing on site as per the traffic engineer's report and as demonstrated in the truck swept pathway (Appendix E, Figure 7).

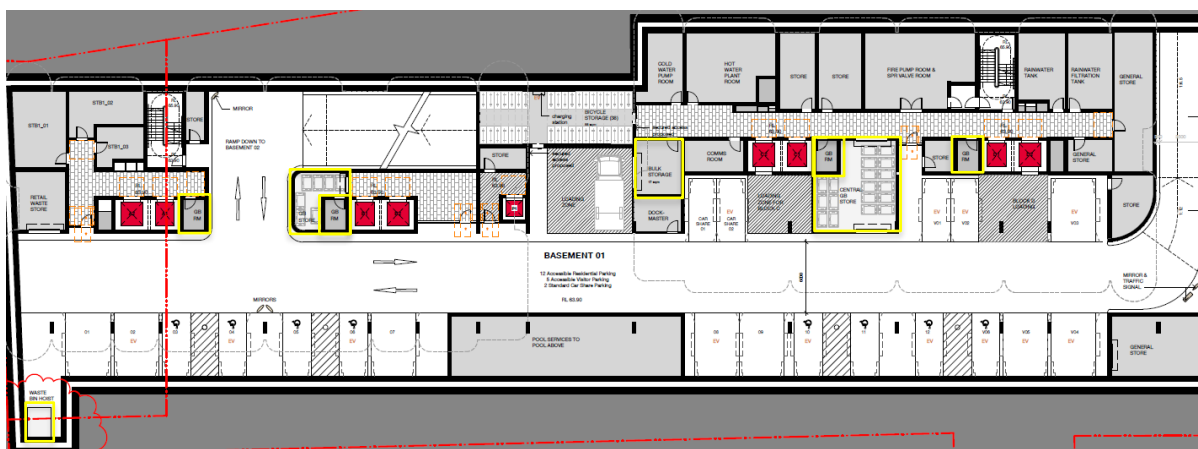


Figure 1: Basement 01 with designated Garbage Rooms for each of the lobbies.



Figure 2: Location of the waste storage chutes.

5 Storage Areas: General Requirements

The development's central waste and recycling storage facilities will be located within Basement 01 with dedicated rooms for storage of waste and recycling, with additional space to include a bin wash area, and a separate room for bulky goods storage.

Below are the relevant requirements from Waverley Council's Development Plan for waste storage rooms:

- Enclosed to prevent noise, odour and visual impacts
- Designed with a 1.8m unobstructed clearance zone between the stored bins and the entrance for access and manoeuvrability
- Designed with suitable door and corridor access to enable bin movement; (v)
Constructed of concrete or other approved materials at least 75mm thick
- Finished with a smooth even surface and coved at the intersection with walls and plinths with a ramp to the doorway as required
- Graded and drained to the sewerage system and approved by Sydney Water
- Fitted with a close fitting and self-closing door that can be opened from within the room
- Designed with adequate lighting and naturally/mechanical ventilation to meet Building Code of Australia 2016 requirements
- Fitted with smoke detectors in accordance with the relevant Australian Standards.
- Equipped taps supplying hot and cold water, mixed through a centralised mixing valve with a hose cock and fitted with an aerator to increase water efficiency
- Designed to ensure waste-water from the cleaning of the waste storage area and bins, is not to drain into the stormwater system.

All waste and recycling containers will be clearly differentiated through appropriate signage and colour coding to reflect the materials contained, with each stream located in a designated area within storage rooms, with large and clear signage to assist in easy identification by users, as shown in Appendix C. Other best practice standards for storage and handling areas include:

- Ensuring the loading dock and waste loading areas are level and free of kerbs, steps.
- Line markings showing the loading area and positions of bins within the storage room
- Highly visible signage as shown in Appendix C

5.1 Bulky and Problem Waste Room Requirements

Residential Bulky Waste room requirements:

Between 21 and 40 units: $4\text{m}^2 + 1\text{m}^2$ for every 10 additional units above 20 units.

- A room or caged area with a minimum floor space of 4m^2 must be provided for the storage of discarded bulky items and problem waste, awaiting collection. The doorway of this storage area must be at least 1.5m.
- Additional space is required for recycling problem waste such as textiles or electronic waste. The floor space required is 1 m^2 per 50 units to a maximum 2m^2 . This space should be in or attached to the storage area.
- Developments containing more than 3 habitable storeys must:
- Provide a system for convenient transportation of waste and recyclable material to the communal waste and recycling storage area; and
- Provide a waste and recycling compartment/area on each floor with sufficient capacity to store at least 1-day of waste and recycling likely to be generated on that floor.

5.2 Garbage Chute Requirements

The extract below from Council's DCP describes the type of chute system that will be required for the development:

Annexure B1-6

Garbage Chutes, Compactors and Service Lifts Guidelines

Garbage chute design

- Garbage chutes must be constructed in accordance with the requirements of the *Building Code of Australia (BCA)*.
- Garbage chutes must be located and insulated in a manner that reduces noise impacts.
- Chutes, service openings and charging devices must be constructed of material (such as metal) that is smooth, durable, impervious, non-corrosive and fire resistant.
- Chutes, service openings and charging devices must be capable of being easily cleaned.
- Chutes must be cylindrical and should have a diameter of at least 500mm.
- There must not be any bends (or sections of reduced diameter) in the main shaft of the chute.
- Internal overlaps in the chute must follow the direction of waste flow.
- Chutes must deposit rubbish directly into a bin or compactor located within a waste/recycling storage room.
- A cut-off device must be located at or near the base of the chute so that the bottom of the chute can be closed when the bin or compacting device at the bottom of the chute is withdrawn or being replaced.
- The upper end of a chute should extend above the roofline of the building.
- The upper end of a chute should be weather protected in a manner that doesn't impede the upward movement of air out of the chute.

Garbage chute service room design

- The service opening (for depositing rubbish into the main chute) on each floor of the building must be located in a dedicated service room.
- The charging device for each service opening must be self-closing and must not project into the main chute.
- Branches connecting service openings to the main chute are to be no more than 1m long.
- Each service room must include containers for the storage of recyclable materials. Signage regarding the materials that can be recycled should be displayed near these containers.
- Each service room must be located for convenient access by users and must be well ventilated and well lit.
- The floors, walls and ceilings of service rooms must be finished with smooth, durable materials that are capable of being easily cleaned.
- Service rooms must include signage that clearly describes the types of materials that can be deposited into the garbage chute and the types of materials which should be deposited into recycling bins.

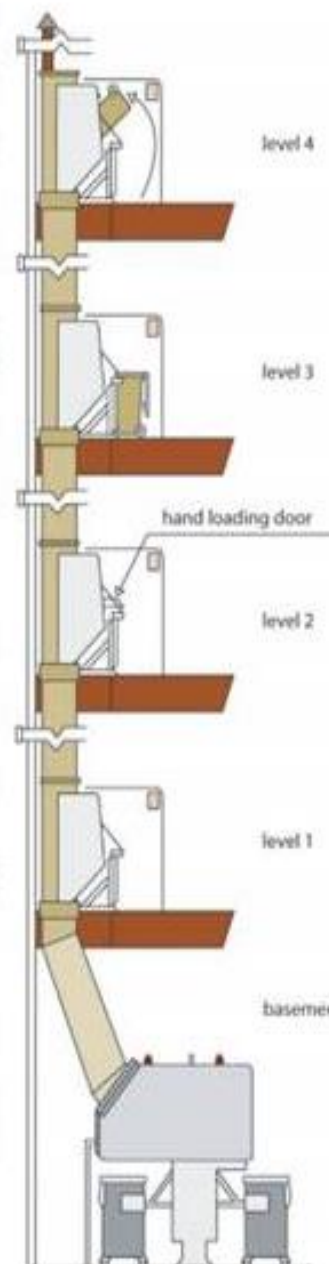


Figure 34 Example of a garbage chute system

Management:

- Garbage chutes are not to be used for the disposal of recyclable materials. Signage to this effect should be displayed near service openings.
- Arrangements must be in place for the regular maintenance and cleaning of garbage chutes and any associated service rooms, service openings and charging devices.
- Arrangements must be in place for the regular transferal of recyclable materials (which are stored in service rooms) to the main waste/recycling storage room.

Appendix B shows a typical waste chute diagram from Waverley Council's DCP. Further detailed schematic diagrams and advice on waste chutes can be obtained by contacting:

Compacs www.compacs.com.au
Elephants Foot www.elephantsfoot.com.au
Wastech www.wastech.com.au

6 Operational Waste Management Systems

Tenancy	Material Streams	Collection, Storage, & Management Processes
Residential	General Waste Mixed Recycling (Glass, Metal, & Plastic Containers)	<p>On each habitable floor, a waste chute allows for the residents to dispose of their residual waste. The waste is then outputted into a bin stationed within the respective basement waste storage rooms. Recycling will be stored in the two dedicated 240L bins (mixed recycling/ paper and card) within the Lobby Garbage Room on each floor within the garbage chute room.</p>
Retail/ Communal		<p>The building managers/cleaners will be responsible for transporting the recyclables from each floor to the main waste storage room located in Basement 01 as highlighted in Figure 1 and shown in Appendix A. The transfer of 660L General Waste bins will also be managed by the building managers/ cleaners with regards to managing the chute access on the designated collection dates.</p> <p>An external contractor will collect these materials on a schedule to be set once the building is operational. Collections will take place outside standard business hours to avoid vehicle congestion on Basement 01. Cleaning staff will maintain the organisation and cleanliness of the bin storage room and the collection area.</p>
	Bulky Waste	<p>Bulky waste such as furniture, bedding, appliances, etc. will be stored in a dedicated area on the Basement 01.</p> <p>These items will be collected on an as-needed basis. We recommend that these be done at least quarterly to avoid excessive build-up of excessive quantities of materials.</p>

7 Waste Contractor Requirements

To achieve best practice, aside from council, the site's waste contractor will be required to demonstrate high standards of service and be able to comply with the following requirements:

- Reliable and efficient servicing, and meeting all agreed schedules
- Vehicle fleets fitted with suitable onboard bin weighing technology
- Suitably sized collection vehicles to be able to access the building's loading dock
- Maintaining accurate and comprehensive tracking systems for all materials collected
- Working with the site to achieve continuous improvements in recovery rates
- Providing detailed monthly and annual reports on diversion and financial outcomes

8 Tenant & Stakeholder Education

For the new systems to be successful an intensive education program will be required for the development's residential and commercial tenants. Residents will be given appropriate instructions on the use of the dual chute system, with signage and instructions stationed in each chute disposal room across each floor.

Cleaners and building managers will be a key element in the effectiveness of the new systems and as such, relevant procedures will need to be written into contract specifications, including requirements for monitoring contamination of recycling streams and condition of bins and other equipment, and providing users with feedback on ongoing systems performance.

9 Ongoing Management & Reporting

Following implementation of the new systems, a monthly performance reporting system, based on the Better Buildings Partnership (BBP) *Operational Waste Guidelines*, should be instituted. This will ensure the continued success of the site's waste minimisation initiatives, accurate tracking of performance, and cost-effective waste removal.

Specific performance clauses and KPIs in contracts will ensure that all service providers actively participate in the waste reduction program for the site and meet on a monthly basis to resolve performance issues and identify new opportunities for diversion and avoidance.

Waste and recycling contractors will be required to report actual volumes and tonnages by stream so that site management can monitor performance and feed this back to stakeholders.

Appendix A: General Waste & Recycling Storage

The drawings below show proposed residential waste storage rooms on the Basement 01 floor and their proximity to the waste collection parking space, where the external contractor will enter to collect the waste from. It also identifies the bin movement pathway for Mixed Recycling and Paper and Cardboard waste.



Figure 3: Typical floor recycling waste movement down through the lifts

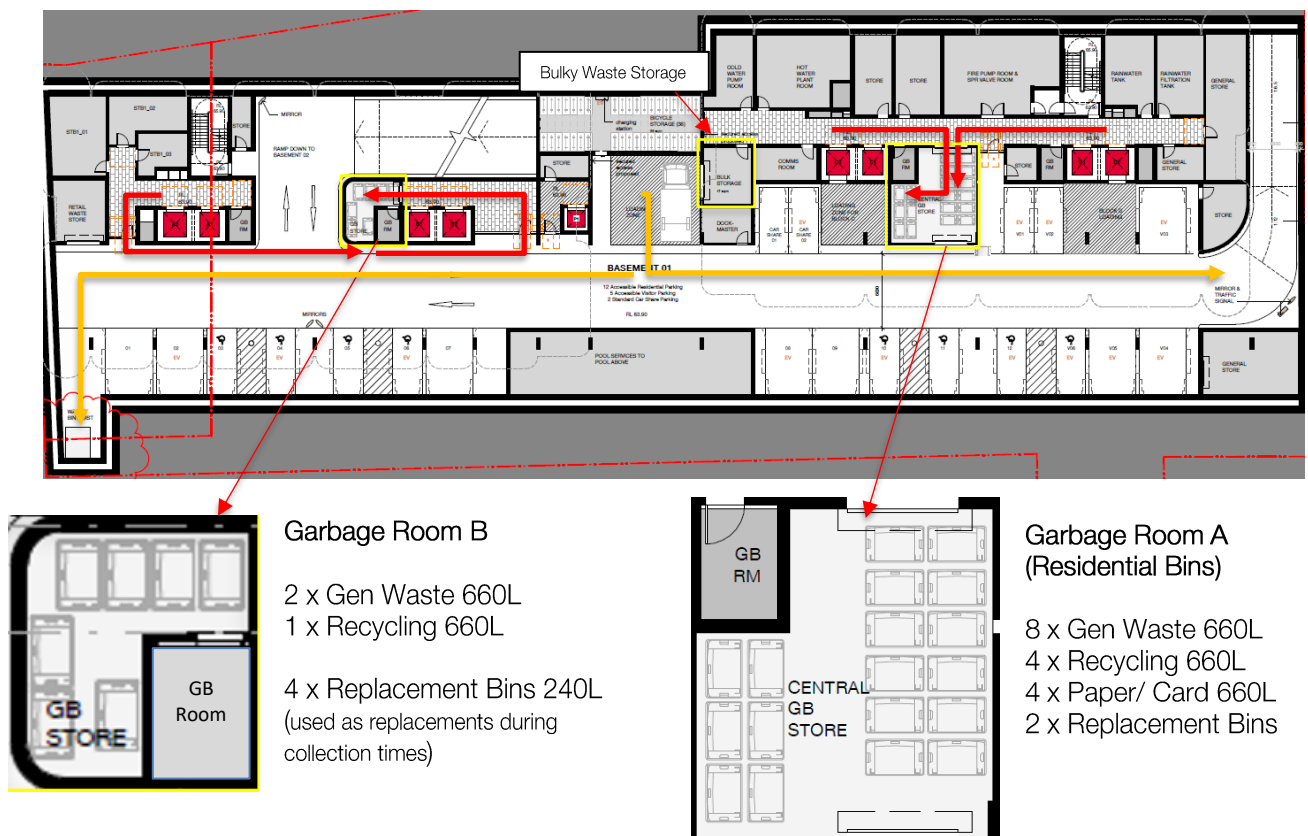


Figure 4: Location and direction to the waste storage rooms.

Appendix B: Typical Waste Chute Drawing

The diagram below has been derived from the Waverley Development Control Plan 2012. A typical Waste Chute will allow for general waste from each floor to be disposed of and directed into a 660L bin in each of the garbage rooms.

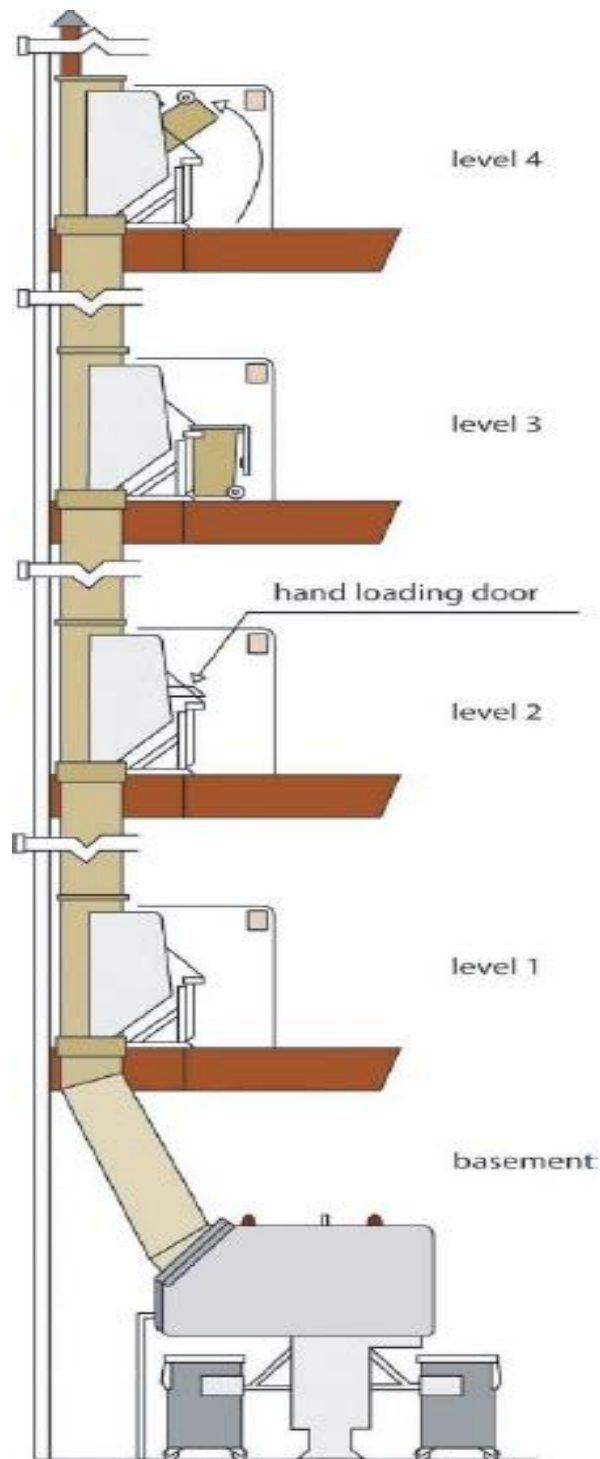
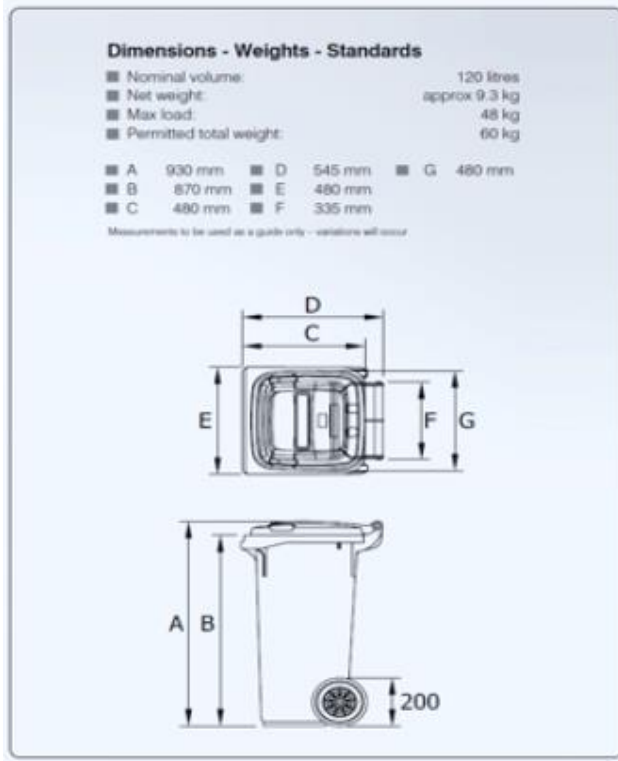


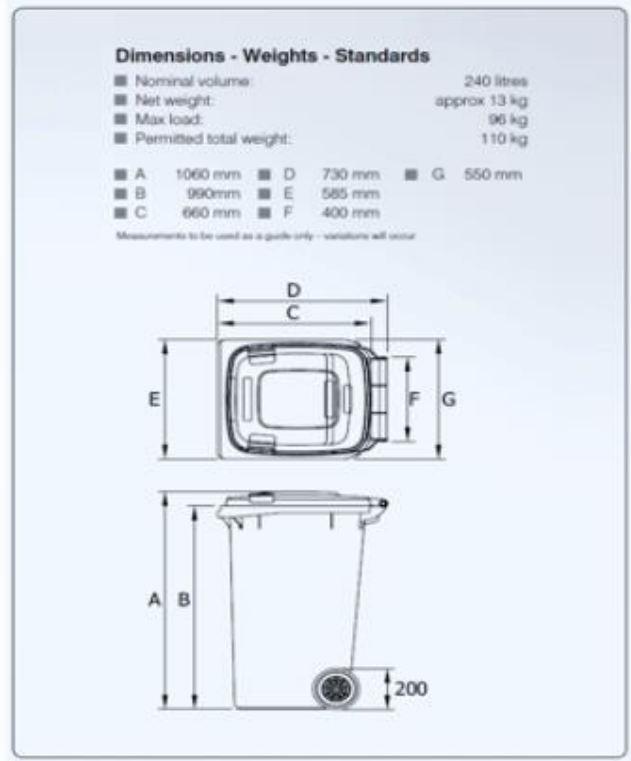
Figure 34 Example of a
garbage chute system

Appendix C: Bin Specifications

120-litre MGB



240-litre MGB



660-litre MGB



1100-litre MGB



Appendix D: Storage Area Design & Signage

The photographs below show examples of good practice in this regard:



The signage examples below are for illustration purposes only. Actual signage should include suitable site-specific branding.



Appendix E: Waste Mini Waste Collector

The photograph below shows the vehicle dimensions of the rear-lift waste collection truck from Waste Mini Contractors.

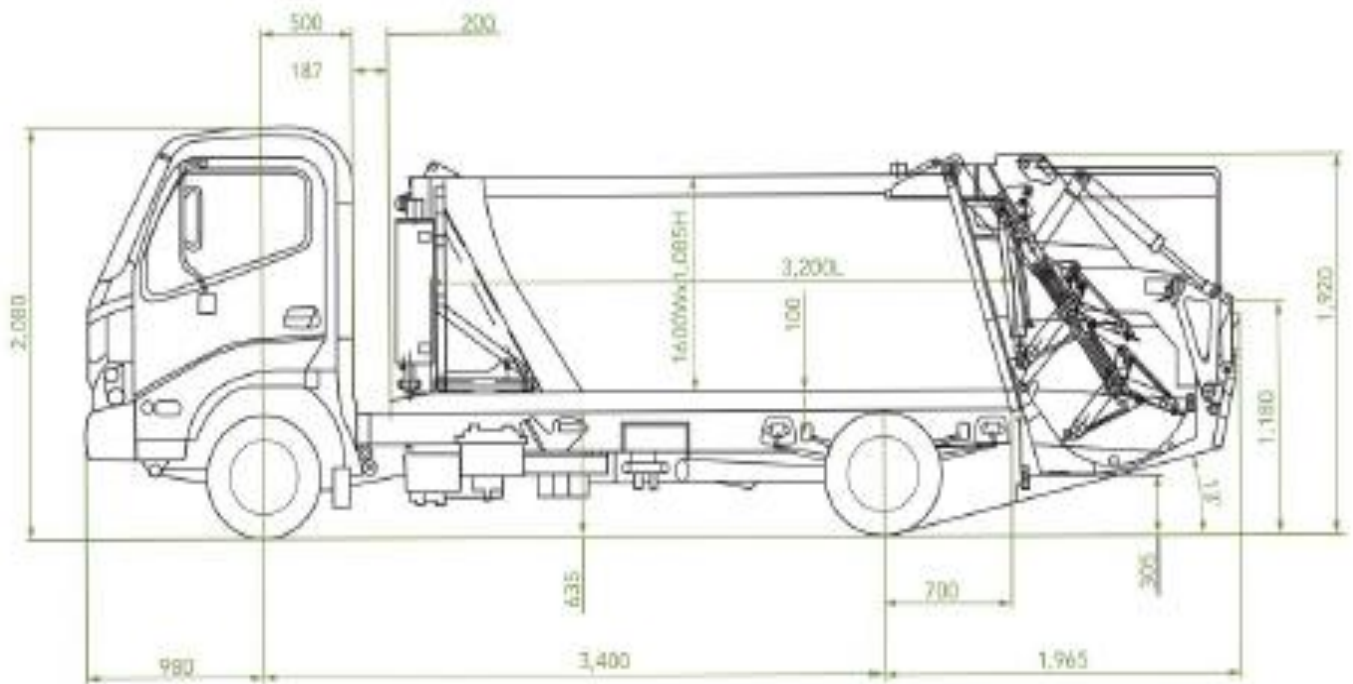


Figure 5: Truck dimensions

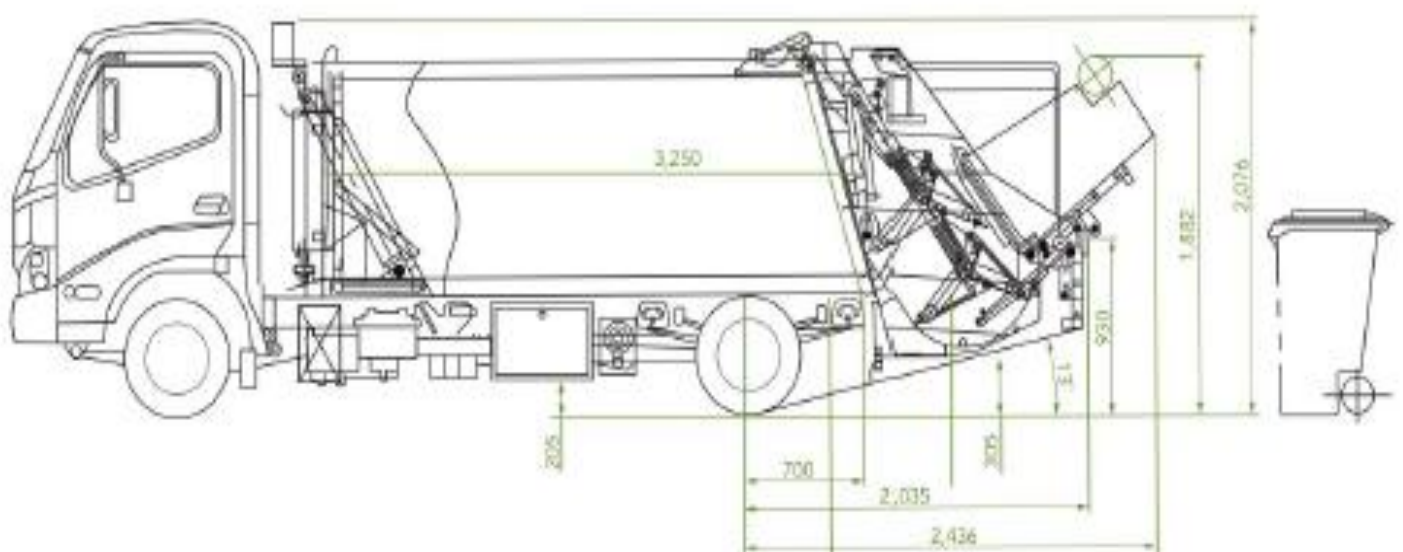


Figure 6: Truck Bin Lift Capabilities

Appendix F: Bin Lifter

Bin lifters that can be used to assist with depositing waste from 240L bins into 660L bins from the Lobby Garbage Rooms.

Niftylift BIN LIFTER



A manually operated bin lifter that aids in the lifting and tipping of wheelie bins—weighing up to 30 kg—into steel skip bins.

The assisted lift and slow-release gas-struts lift bins safely, while protecting the user from costly back injuries associated with lifting heavy loads above shoulder height.

Made in Australia.



Typical applications

Suitable for retail outlets, offices and factories.

Features

Lifting	
Capacity:	30 kg
Mechanism:	Full-swing
Recommended use	
Per person per day:	2 lifts
Bin compatibility	
Wheelie:	120 and 240 litre
Skip:	Up to 1500 mm
Operation	
Method:	Manual assisted lift
Time:	45 seconds
Dimensions (L/W/H)	900/800/1420 mm
Highest tip point	2850 mm
Fits through internal doorways	Yes

Safety features

- Skip bin hooks: Secures the bin lifter to a steel dumper bin, and only operates when secured.
- Padlock: The unit can only operate when unlocked.
- Slow-release gas-struts: Ensures the bin won't suddenly drop and potentially cause injury.
- Base cradle hook: The unit can only operate when the bin is resting on the base cradle hook.

Ecolift BIN LIFTER



A lift-and-tilt crank handle operated unit for lifting and tipping wheelie bins into skip bins. Suitable for schools, factories, retail outlets and offices.

Eliminating all lifting from the process of emptying wheelie bins into skip bins, the bin is lifted by simply manually rotating the crank-handle—protecting the user from costly back injuries associated with lifting heavy loads above shoulder height.

Made in Australia.



Typical applications

Suitable for schools, factories, retail outlets and offices.

Features

Lifting	
Capacity:	50 kg
Mechanism:	Lift-and-tilt
Recommended use	
Per person per day:	6 lifts
Bin compatibility	
Wheelie:	80, 120, 140 and 240 litre
Skip:	Up to 1500 mm
Operation	
Method:	Manual winding crank-handle
Time:	45 seconds
Dimensions (L/W/H)	1200/800/2000 mm
Highest tip point	2800 mm
Fits through internal doorways	Yes (with winch handle removed)

Safety features

- Safety cage panels to protect operators and bystanders.
- The winding motion of the crank handle operation ensures gradual controlled bin lifting.
- Braking castors for stability.

Rugged (powered) BIN LIFTER



Designed with manoeuvrability in mind, its small footprint and light weight—combined with the 240V electro-hydraulic operation—make it the perfect solution for emptying heavy wheelie bins into steel skip bins on building and industrial sites.

The All Terrain model is perfect for outdoor use with its pneumatic wheels (pictured below).

The lift mechanism is a full-swing operation, as opposed to the lift-and-tilt operation of the Ecolift.

Made in Australia.



Typical applications

Suitable for construction sites, hotels, apartments, high-rise basements, caravan parks and other large outdoor areas

Features

Lifting	
Capacity:	150 kg
Mechanism:	Full-swing
Recommended use	
Per person per day:	50 lifts
Bin compatibility	
Wheelie:	80, 120, 140 and 240 litre
Skip:	1500 and 1800 mm
Operation	
Method:	Push-button hydraulic system
Mode:	Full-swing
Time:	35 seconds
Dimensions (L/W/H)	BLEH1500: 850/850/1700 mm BLEH1800: 850/850/1960 mm
Battery	12V rechargeable battery & smart charger
Highest tip point	BLEH1500/1500LL: 3250 mm BLEH1800: 3550 mm
Fits through internal doorways	Yes

Safety features

- Will only operate when connected to steel dumper bin.
- Braking castors for stability.

Appendix G: Swept Pathways

