

Appendix A

Waste generation rates

Waste Generation Rates

The waste generation rates are provided in this Appendix as a guide only.

Industry information should be referred to for further details on commercial wastes for different recreational and commercial developments.

Residential Dwellings

Single unit dwellings and dual occupancy dwellings

Waste generation rates for single dwellings depend upon the number of people residing in the dwelling.

Typical waste generation rates for single unit dwellings and dual occupancy dwellings are as follows:

Waste	Generation rate (L/week)
Garbage	120
Recycling	120
Green Waste	120

Low-Rise / Residential Blocks / High Rise developments

For multi-unit developments typical waste generation rates are as follows:

Waste	Generation rate (L/week)
Garbage	120
Recycling	60

Recreational Facilities

Waste generation rates will depend on the type of activity undertaken at the recreational facility and the size of the facility. Many recreational facilities include retail outlets, restaurant and food outlets and/ or bars.

Where a recreational facility contains commercial or food and beverage outlets, the waste generation rate estimated from recreational facilities should take into consideration the waste generation rates of the appropriate commercial operation/s.

Developers are to consult with other recreational facilities to determine an appropriate waste generation rate for the proposed facility. For larger developments, the generation rate should be discussed with Council prior to submitting a development application.

Educational Facilities

Typical waste generation rates for educational facilities are as follows:

Type of Premises	Garbage	Recycling
Primary/High School	1.5 L/day/student	0.5 L/day/student recyclable paper
Tertiary Education Facility	Dependant on the subjects taught at the educational facility. Development applicants should consult existing facilities and industry standards to determine appropriate estimates for waste generation.	

Commercial Premises

Typical waste generation rates for commercial developments are as follows:

Type of Premises	Garbage Generation	Recycling Generation	Unit
Assembly Rooms			
· Social	50	10	L/100m ² FA/day
· Recreational	50	10	L/100m ² FA/day
· Religious	50	10	L/100m ² FA/day
· Entertainment	0.25	0.05	L/seat/screening
Automotive repair and service	3350 (combined garbage + recycling)		L/100m ² FA/day
Backpackers Accommodation	6	3	L/occupant/day
Banks	5	25	L/100m ² FA/day
Book Shop	40	20	L/100m ² FA/day
Boarding Houses	9	3	L/occupant/day

Type of Premises	Garbage Generation	Recycling Generation	Unit
Building Societies	5	25	L/100m ² FA/day
Camera Shop	130 (combined garbage + recycling)		L/100m ² FA/day
Car Parks	2	0	L/100m ² FA/day
Chemist	50	10	L/100m ² FA/day
Clothing	50	10	L/100m ² FA/day
Community Centres	100-300	240	L/100m ² FA/day
Department Stores	100	20	L/100m ² FA/day
Domestic appliance retailing	50 (combined garbage + recycling)		L/100m ² FA/day
Domestic hardware and houseware	40 (combined garbage + recycling)		L/100m ² FA/day
Dry Cleaners	70	20	L/100m ² FA/day
Electrical Goods Shop	50	10	L/100m ² FA/day
Fabric & other soft goods retailing	40 (combined garbage + recycling)		L/100m ² FA/day
Factories	40	20	L/100m ² FA/day
Florist - Plant Shop	1170 (combined garbage + recycling)		L/100m ² FA/day
Food			
· Butcher	590 (combined garbage + recycling)		L/100m ² FA/day
· Cake	250 (combined garbage + recycling)		L/100m ² FA/day
· Delicatessen	80	40	L/100m ² FA/day
· Fish	580 (combined garbage + recycling)		L/100m ² FA/day
· Greengrocer	790 (combined garbage + recycling)		L/100m ² FA/day
· Restaurants	670	140	L/100m ² FA/day
· Take Away Food	230 (combined garbage + recycling)		L/100m ² FA/day
Furniture	100 (combined garbage + recycling)		L/100m ² FA/day
Gambling services	150 (combined garbage + recycling)		L/100m ² FA/day
Guest Houses	9	3	L/100m ² FA/day
Hairdresser	50-60	10	L/100m ² FA/day
Handbags	50	10	L/100m ² FA/day
Hotels	0	0	
· Bedrooms	5 - 10	1	L/bed/day
· Restaurants	667	133	L/100m ² FA/day
· Bar	50	50	L/100m ² FA/day
Jewellery	50 (combined garbage + recycling)		L/100m ² FA/day
Licensed Clubs			
· Restaurant	667	133	L/100m ² FA/day
· Bar	50	40	L/100m ² FA/day
· Coffee Lounge	90	30	L/100m ² FA/day
Motels			
· Bedrooms	500	100	L/bed/day
· Restaurant	670	140	L/100m ² FA/day

Type of Premises	Garbage Generation	Recycling Generation	Unit
Newsagent	80 (combined garbage + recycling)		L/100m ² FA/day
Office	5 - 10	25	L/100m ² FA/day
Optical	20	10	L/100m ² FA/day
Personal and household goods retailing	100 (combined garbage + recycling)		L/100m ² FA/day
Photographic film processing	280 (combined garbage + recycling)		L/100m ² FA/day
Records	170 (combined garbage + recycling)		L/100m ² FA/day
Retail Store (food trading)	10 - 20	0	L/100m ² FA/day
Retail Store (non food, less than 100m ² floor area)	50	10 - 25	L/100m ² FA/day
Retail Store (non food, over 100m ² floor area)	50	10 - 50	L/100m ² FA/day
Shoes	60	30	L/100m ² FA/day
Showrooms	40	10	L/100m ² FA/day
Sport and camping equipment	50 (combined garbage + recycling)		L/100m ² FA/day
Supermarkets	240	240	L/100m ² FA/day
T.A.B	40	20	L/100m ² FA/day
Theatres	25	5	L/seat/screening
Toy store	130 (combined garbage + recycling)		L/100m ² FA/day
Travel	80 (combined garbage + recycling)		L/100m ² FA/day
Warehouses	30	30	L/100m ² FA/day
Milk vending	190 (combined garbage + recycling)		L/100m ² FA/day
Specialised food retailing	180 (combined garbage + recycling)		L/100m ² FA/day

L/100m²FA/day = Litres per 100 m² of gross floor area per day

Sources: New South Waste Boards Fact Sheet 2, "Buying into Waste Management", and Manly Council's Development Code for Waste Minimisation and Management 2000.

Mixed Use Developments

Waste generation for mixed-use developments should be estimated based on the combination of waste generation estimates for the type of residential dwelling and commercial premise/s.

Appendix B

Waste bins



Bin Type	140L MGB	240L MGB	660L Bulk Bin	1100L Bulk Bin
Construction material	Plastic	Plastic	Plastic	Plastic
Height (mm)	1065	1080	1235	1470
Depth (mm)	540	735	765	1245
Width (mm)	500	580	1360	1370

Note: crate dimensions may vary between different bin manufacturers

Appendix C

Garbage and Recycling Enclosures and Rooms

Garbage and Recycling Enclosures and Rooms

This appendix describes Council's requirements for Garbage and Recycling Enclosures and Rooms.

Appendix D describes Council's requirements for Refrigerated Garbage Rooms.

Overview

All developments shall be provided with a waste storage facility. The waste storage facility may be:

- ▶ An onsite storage area;
- ▶ A Garbage And Recycling Enclosure;
- ▶ A Garbage And Recycling Room; or
- ▶ A Refrigerated Garbage Room.

A summary of generally appropriate waste storage facilities for different development types is provided below.

Waste storage facility	Potentially suitable development
Waste Storage Area	<ul style="list-style-type: none"> ▶ Single dwellings and dual occupancy ▶ Villas and town houses ▶ Commercial premises ▶ Educational and recreational facilities
Garbage and Recycling Enclosure	<ul style="list-style-type: none"> ▶ Villas and town houses ▶ Low-rise developments ▶ 4-7 storey residential blocks ▶ Educational and recreational facilities
Garbage and Recycling Room	<ul style="list-style-type: none"> ▶ Low-rise developments ▶ 4-7 storey residential blocks ▶ High-rise developments ▶ Commercial premises ▶ Educational and recreational facilities
Refrigerated Garbage Room	<ul style="list-style-type: none"> ▶ Commercial developments ▶ Any development that generates significant quantities of perishable wastes where collections are infrequent.

General requirements

- C1. Garbage bins and recycling bins should be grouped together in different locations within the Garbage and Recycling Enclosure/Room. Although green waste bins are not required to be stored with garbage and recycling bins, their storage location should be determined using the same principles as described in this Appendix.
- C2. Garbage and Recycling Enclosures / Rooms shall not contain any fittings, facilities or matter not associated with the treatment, storage or disposal of garbage, recycling and bulk items.
- C3. In general, all Garbage and Recycling Enclosures / Rooms must:
 - ▶ Comply with the Building Code of Australia (BCA) and all relevant Australia Standards;
 - ▶ Allow storage of all waste bins on site at all times (other than the periodic placement of bins at the kerbside);
 - ▶ Permit easy access for users of the waste bins;
 - ▶ Allow easy, direct and convenient transfer of bins to the collection point; and
 - ▶ Be located onsite in such a position that avoids creating a nuisance from dust, litter, odour and noise at all times. Consideration shall be given to the location of buildings onsite and on adjacent properties.
- C4. The design of the Garbage and Recycling Enclosures / Rooms shall compliment the design of the development and shall not be visually obtrusive from the streetscape or from any public place;

Space requirements

- C5. Garbage and Recycling Enclosures / Rooms shall be sized as follows:
 - ▶ To accommodate all garbage and recycling or other waste arising on the premises together with any associated plant and equipment (such as chutes and compactors) for handling and storing the generated waste; and
 - ▶ To accommodate all bins allocated to a development according to Council's standard services.
- C6. The ceiling height of waste storage facility shall be a minimum of 2100 mm;
- C7. The doorway opening to the Garbage and Recycling Enclosure / Room shall be of adequate size to allow easy access to bins and permit the installation and maintenance of waste handling and compaction equipment that may be used in the garbage room;
- C8. Adequate area shall be provided in the Garbage and Recycling Enclosure / Room to allow users to easily access bins and bulky item storage space;
- C9. Each bin (MGBs and bulk bins) must be accessible and manoeuvrable in and out of the Garbage and Recycling Enclosure / Room with minimum or no handling of other bins;

- C10. Bins in communal Garbage and Recycling Enclosures / Rooms should be arranged together according to waste type with appropriate separation between bin groups (eg. all garbage bins could be located together on one wall with all recycling bins located together on an opposite wall);
- C11. Garbage and Recycling Enclosures / Rooms must be constructed to allow flexibility in size and layout to cater for future changes of building use and tenancy;
- C12. Signs showing correct disposal of garbage and recycling must be erected in all Garbage and Recycling Enclosures / Rooms. Figure C1 shows a typical layout of a Garbage and Recycling Enclosure.

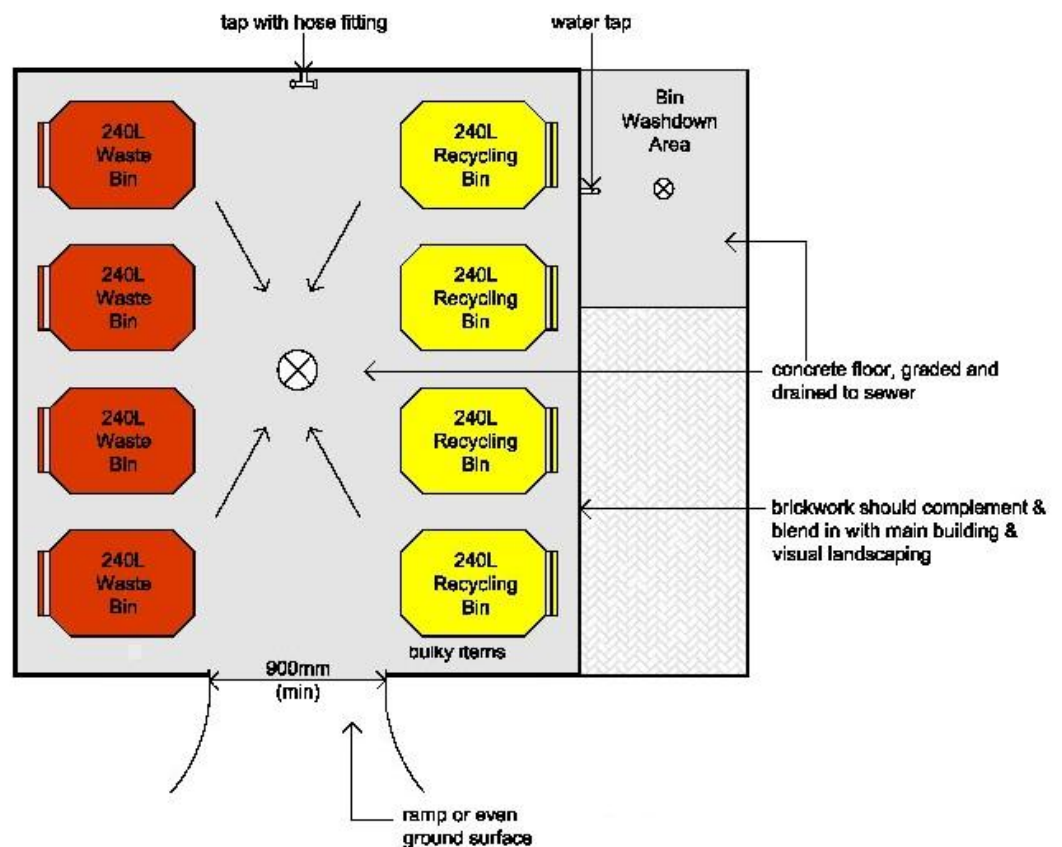


Figure C1 Layout of typical Garbage and Recycling Enclosure.

Location requirements

- C13. Garbage and Recycling Enclosures and Rooms shall be positioned in locations that permit easy direct and convenient access for users of the facilities and permit easy transfer of bins to the collection point;
- C14. The path for transferring the garbage and recycling bins from the garbage and recycling room/enclosure to the collection point shall be of adequate width, level, free of lips, steps and other obstacles and direct, smooth and without steps;
- C15. Consideration must be given to occupational health risks when designing the transfer distance of bins from the Garbage and Recycling Enclosure / Room to the collection point. Where bulk bins are used, the distance which bins must be transported to the collection point shall be minimal.
- C16. For onsite collection, the collection point shall be readily accessible to the collection vehicle in a level area away from gradients and vehicle ramps;
- C17. For onsite collection, sufficient manoeuvring space and clearance shall be provided to allow collection vehicles to enter and exist in a forward direction (see Appendix F);
- C18. At the collection point, bins must be placed for collection on the same level as the collection vehicle (ie bins must not be placed for collection on elevated landings such as loading docks);
- C19. Garbage and Recycling Enclosures / Rooms and internal collection points shall be located so that their use will not interfere with the use of access driveways, loading bays and parking bays;
- C20. It is preferred that Garbage and Recycling Enclosures are not located in front of the main building alignment. If it is proposed to locate the Garbage and Recycling Room in the front of the main building alignment adequate screening shall be provided to prevent viewing the Garbage and Recycling Room from the street or an public areas;
- C21. Garbage and Recycling Rooms shall be located entirely within the main building.

Access

- C22. Where a development has two or more street frontages, Council should be consulted to determine the most appropriate kerbside collection point (eg. Council may not provide collection services where the street frontage is located in a narrow laneway).
- C23. Where compactors are used, the garbage and recycling room shall be partitioned to prevent resident access to the compactor. Residents shall however be provided access to bulky items storage, recyclables storage, and some garbage receptacles (not attached to compaction units) in the garbage and recycling room;
- C24. Bulk bins should not be manoeuvred up or down sloped driveways or paths for placement at the collection point. The gradient shall not exceed 1 in 20.
- C25. The minimum entry and exit width for doorways on Garbage and Recycling Rooms (and any additional doorways or archways on the access path allowing for doors and lintels) is 1m where 240L MGBs are used, and 2.5 m where bulk bins are used.

- C26. Doors on Garbage and Recycling Rooms should always be able to be opened from the inside. It is preferable that doors open outwards so that potential damage to bins or other obstacles located behind doors is minimised. Doors should be able to be locked in open position to facilitate movement of bins in and out of the waste storage area.

Construction

Onsite access driveways

- C27. For onsite collection, all driveways, internal roads and collection points that are to be traversed by the collection vehicle shall be designed to carry the collection vehicles and loads and shall be of adequate strength, width and a gradient of not more than 1 in 10.

Garbage and Recycling Rooms and Enclosures

- C28. The floor shall be constructed of concrete or other approved material, graded and drained to an approved drainage outlet connected to the sewer and shall be finished to a smooth even surface coved at the intersection of walls and plinths;
- C29. Garbage and recycling rooms and enclosures shall be constructed in such a manner as to prevent the entry of vermin;
- C30. The walls shall be constructed of approved solid impervious material and shall be cement rendered internally to a smooth even surface coved at all intersections;
- C31. The ceilings shall be finished with a rigid smooth faced non absorbent material capable of being easily cleaned;
- C32. A close fitting robust weatherproof door with internal face smooth and impervious shall be provided. Doors shall also be capable of being easily opened;
- C33. Where containers are housed in a garbage and recycling room:
- ▶ A bump rail constructed of galvanised metal or other approved durable impervious material shall be installed around and at least 50 mm clear of walls, or flat sheet iron shall be installed flush with walls, and
 - ▶ Galvanised angle iron shall be installed around door openings.

Figure C2 and shows illustrations of the external of Garbage and Recycling Enclosures.



Figure C2 Illustration of external of Garbage and Recycling Enclosures

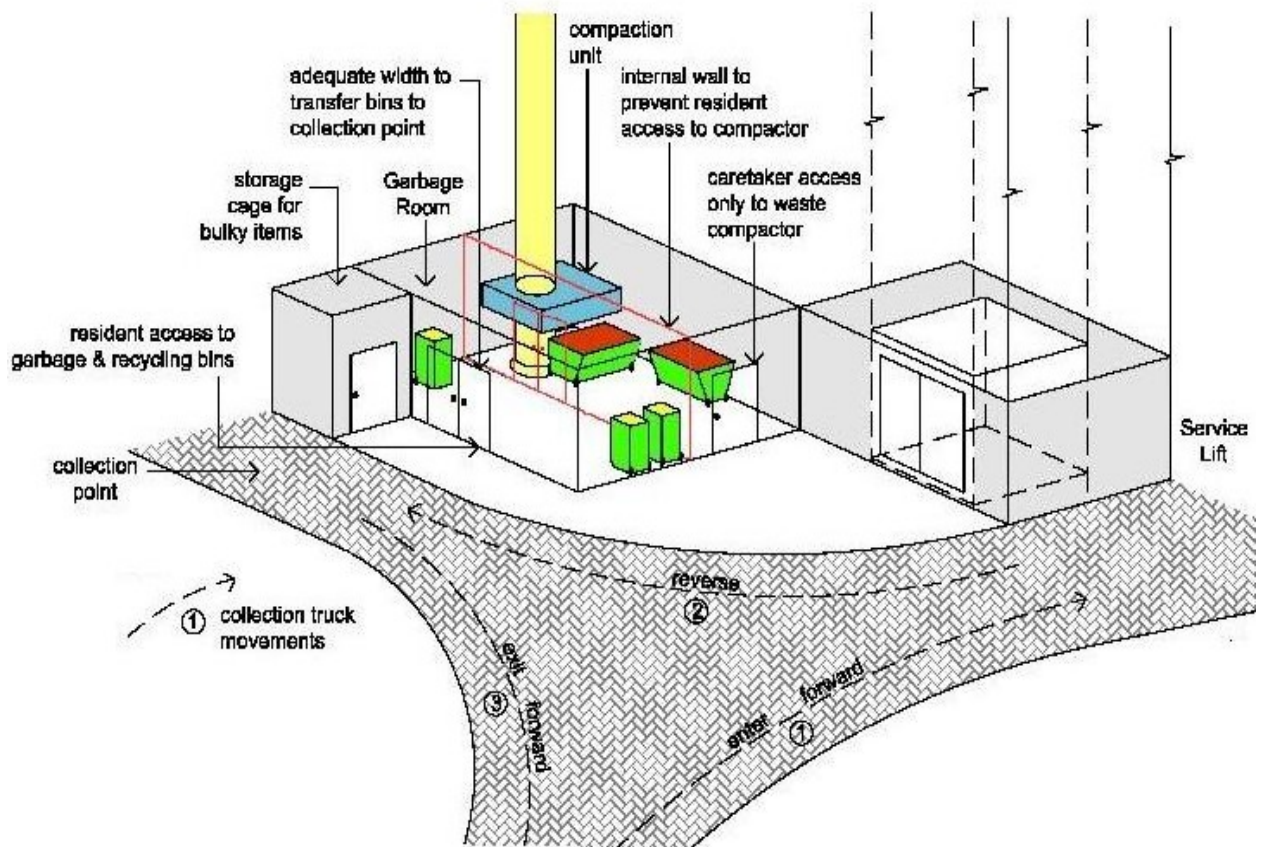


Figure C3 Illustration of a Garbage and Recycling Room (high-rise development)

Lighting

C34. Garbage and Recycling Enclosures / Rooms shall be provided with artificial lighting controllable from a switch located outside the room;

- C35. Artificial light shall be provided where necessary outside the Garbage and Recycling Enclosure / Room to enable residents to dispose of waste safely and appropriately at all times;
- C36. Lighting must be provided for Garbage and Recycling Rooms in accordance with the relevant Australian Standards and the Building Code of Australia;

Ventilation, shading and weather protection

- C37. Garbage and Recycling Rooms shall be ventilated by:
- ▶ an approved system of mechanical exhaust ventilation in accordance with the requirements of the Building Code of Australia and AS 1668.2; or
 - ▶ permanent, unobstructed natural ventilation openings, direct to the external air, having an aggregate of not less than one-twentieth (1/20) the floor area, and providing cross-ventilation.
- C38. Ventilation openings should be protected against flies and vermin and located as near the ceiling and floor as possible, but away from the windows of dwellings;
- C39. All facilities are to be drained to sewer. It is necessary to exclude rainwater from entering the sewerage system by providing roofing and protection against windblown rain and by diverting runoff.
- C40. External Garbage and Recycling Enclosures shall have adequate weather protection for persons using the room.

Safety

- C41. Garbage and Recycling Enclosures / Rooms should be designed to discourage theft and vandalism;
- C42. Doorways on garbage storage areas housing bulk bins should be fitted with galvanised iron to protect them against potential damage caused from bins striking the doors during movements in and out of the area;
- C43. Care must be taken when opening lids on bulk bins. Bulk bins should be positioned to minimise potential OH&S risks to users and potential damage to buildings, plant and equipment.
- C44. Adequate weather protection of Garbage and Recycling Enclosures / Rooms should be provided where appropriate.
- C45. Garbage and Recycling Enclosures / Rooms must be fire isolated and fitted with fire alarms or fire sprinklers in accordance with the requirements of the Building Code of Australia.

Noise

- C46. The ground area of the pathway between the waste storage facility and collection point should be of a smooth finish that enables easy movement of bins and minimises noise from bin movements;
- C47. Nibs or bump rails should be used in internal bin storage areas to prevent bins from making contact with the walls.

Hygiene, cleaning, and maintenance

- C48. Waste storage facilities should be designed to prevent access of vermin;
- C49. An adequate approved supply of cold water shall be provided to all garbage and recycling rooms and enclosures;
- C50. Bin wash facilities should be provided where communal bin storage areas are utilised. The area should be graded and well drained with water discharging to sewer in accordance with Sydney Water requirements;
- C51. Areas outside the garbage and recycling room should drain away from the waste storage facility.
- C52. The floor, walls and ceiling of garbage and recycling rooms and enclosures should be finished in a smooth, impervious and easily cleanable material.

Examples of Garbage and Recycling Enclosures and Rooms

Examples of a Garbage and Recycling Enclosure / Room is shown in Figure C4 to Figure C6.



Figure C4 Garbage and Recycling Enclosure (residential multi-unit dwelling).



Figure C5 Garbage and Recycling Room within a mixed-use development



Figure C6 Garbage and Recycling Enclosure (low-rise development), with bins positioned on kerbside for collection

Appendix D

Refrigerated Garbage Rooms

Refrigerated Garbage Rooms

This appendix describes Council's requirements for Refrigerated Garbage Rooms.

Appendix C describes Council's requirements for Garbage and Recycling Enclosures / Rooms.

General requirements

- D1. Refrigerated Garbage Rooms may be provided for the storage of garbage arising on premises in lieu of a normal garbage and recycling room. Space for recycling and bulky items must also be provided adjacent to the refrigerated garbage room (but this space does not need to be refrigerated);
- D2. Refrigerated Garbage Rooms shall not contain any fittings, facilities or matter not associated with the treatment, storage or disposal of garbage.

Location and access

- D3. Refrigerated Garbage Rooms shall be situated within the main building. Communal refrigerated garbage room facilities must be easily accessible from all commercial units and shall contain clearly marked areas for storage of garbage from each tenant;
- D4. Refrigerated Garbage Rooms shall be positioned in locations that permit easy and convenient access for users of the room and permit easy transfer of bins to the collection point;
- D5. Refrigerated Garbage Rooms shall be located so that bins can be easily manoeuvred to the collection point without creating a nuisance from dust, litter, odour or noise;
- D6. A service lift should be used to transfer garbage to the refrigerated garbage room if appropriate. The refrigerated garbage room shall be located in close proximity to the service lift;
- D7. Space for storage of recycling is to be located adjacent to Refrigerated Garbage Rooms;
- D8. The path for transferring the garbage from the refrigerated garbage room to the collection point shall be direct, smooth and without steps. The following maximum travel distances shall be complied with for the transfer of receptacles from the refrigerated garbage room to the collection point:
 - ▶ Not more than 75 m for the transfer of 240 L or smaller MGBs with uncompacted waste;
 - ▶ Not more than 10 m from the transfer plastic bulk bins;
 - ▶ Not more than 3 m for the transfer of MGBs and plastic bulk bins with compacted garbage;
 - ▶ Not be more than 3 m for the transfer of metal bulk bins.

- D9. Bulk bins will be collected from inside the property where Council access requirements are met. Bulk bins should not be manoeuvred up or down sloped driveways or paths when transferring the bins to the collection point;
- D10. Refrigerated garbage rooms and internal collection points shall be located so that their use will not interfere with the use of access driveways, loading bays and parking bays;
- D11. For onsite collection, the collection point shall be in a level area away from vehicle ramps and readily accessible to the collection vehicles;
- D12. For onsite collection, sufficient manoeuvring space and clearance shall be provided to allow collection vehicles to enter and exist in a forward direction (see Appendix F);
- D13. At the collection point, bins must be positioned for collection at the same level as the collection vehicle;
- D14. The minimum entry and exit width for doorways in refrigerated garbage rooms housing only MGBs of 240L capacity or less (and any additional doorways or archways on the access path allowing for doors and lintels) is 1m. Sufficient doorway clearance must be provided where larger bins are used;
- D15. Signs showing corrected disposal of garbage and recycling must be erected in all Garbage and Recycling Enclosures / Rooms.

Size

- D16. Refrigerated Garbage Rooms shall be of adequate dimensions to accommodate garbage arising on the premises together with any facilities and equipment for handling and storage of such garbage;
- D17. Adjacent recycling area shall be of adequate dimensions to accommodate recyclable materials arising on the premises;
- D18. Adequate area shall be provided in the Refrigerated Garbage Rooms to allow users to easily access waste bins;
- D19. Each bin must be accessible and manoeuvrable in and out of the refrigerated garbage rooms area with minimum or no handling of other bins;
- D20. The ceiling height of waste storage facility shall be a minimum of 2100 mm;
- D21. The doorway opening to the refrigerated garbage room shall be of adequate size to allow easy access for receptacles or container and permit the reinstallation and maintenance of equipment (such as compactors, see Appendix E) that may be used in the refrigerated garbage room;
- D22. Doors on refrigerated garbage room should always be able to be opened from the inside. It is preferable that doors open outwards so that potential damage to bins or other obstacles located behind doors is minimised. Doors should lock in an open position to facilitate movement of bins in and out of the refrigerated garbage room;
- D23. Commercial garbage and collection rooms must be constructed to allow flexibility in size and layout to cater for future changes of building use and tenancy.

Construction

Onsite access driveways

- D24. For onsite collection, the driveway to be traversed by the collection vehicle shall be design to carry the collection vehicles and loads, and shall be of adequate strength, width and a gradient.

Refrigerated garbage room

- D25. The floor shall be constructed of concrete at least 75 mm thick or other approved material, graded and drained to an approved drainage outlet connected to the sewer and shall be finished to a smooth even surface coved at the intersection of walls and plinths;
- D26. The walls shall be constructed of approved solid impervious material and shall be cement rendered internally to a smooth even surface coved at all intersections;
- D27. The ceilings shall be finished with a rigid smooth faced non absorbent material capable of being easily cleaned;
- D28. A close fitting robust door with internal face smooth and impervious shall be provided. Doors shall also be capable of being easily opened;
- D29. Where bulk bins are housed in a Refrigerated Garbage Room:
- ▶ A bump rail constructed of galvanised metal or other approved durable impervious material shall be installed around and at least 50 mm clear of walls, or flat sheet iron shall be installed flush with walls, and
 - ▶ Galvanised angle iron shall be installed around door openings.
- D30. Refrigerated Garbage Rooms and enclosures shall be constructed in such a manner as to prevent the entry of vermin.

Lighting

- D31. Refrigerated Garbage Rooms shall be provided with artificial lighting controllable from a switch located outside the room;
- D32. Artificial light shall be provided where necessary outside the refrigerated garbage room to enable tenants to dispose of waste safely and appropriately at all times;
- D33. Lighting must be provided for Refrigerated Garbage Room in accordance with the relevant Australian Standards and the Building Code of Australia.

Ventilation, shading and weather protection

- D34. Refrigerated Garbage Rooms shall be ventilated by an approved system of mechanical exhaust ventilation in accordance with the requirements of the Building Code of Australia and AS 1668.2;
- D35. Ventilation openings should be protected against flies and vermin and be directed away from public accessible areas.

Safety

- D36. Refrigerated Garbage Room must be fire isolated and fitted with fire alarms or fire sprinklers in accordance with the requirements of the Building Code of Australia;
- D37. Doorways on refrigerated garbage rooms housing bulk bins should be fitted with galvanised angle iron to protect them against potential damage caused from bin movements in and out of the area;
- D38. Care must be taken when opening lids on bulk bins. Bulk bins should be positioned to minimise the risk of harming people or doing potential damage to buildings and equipment through the act of opening and closing lids.

Noise

- D39. The ground area of the pathway between the Refrigerated Garbage Room and collection point should be of a smooth finish that enables easy movement of bins and minimises noise from bin movements;
- D40. Nibs or bump rails should be used in Refrigerated Garbage Room to prevent bins from making contact with the walls.

Hygiene, cleaning, and maintenance

- D41. Refrigerated Garbage Rooms should be designed to prevent access of vermin;
- D42. An adequate approved supply of cold and hot water shall be provided to all Refrigerated Garbage Rooms;
- D43. Bin wash facilities should be provided where communal bin storage areas are utilised. The area should be graded and well drained with water discharging to sewer in accordance with Sydney Water requirements;
- D44. The floor, walls and ceiling of the Refrigerated Garbage Room should be finished in a smooth impervious easily cleaned material;
- D45. Areas outside the Refrigerated Garbage Room should drain away from the refrigerated garbage room.

Appendix E

Home Composting and Wormeries

Home composting and wormeries

General

Composting is a natural process that turns organic material into compost – a rich soil-like material which can be added to a garden to improve the quality of the garden soil. An international study has indicated that home composting can potentially divert up to 12% of the total amount of household waste (Centre for Innovation in Waste Management and the City of Greater Geelong, 1996).

Wormeries can also be used to dispose of fruit and vegetable scraps and paper. Worms also produce a soil conditioner - worm castings.

- E1. Developers shall consider providing composting or wormeries in all new developments. The provision of composting and wormery facilities in any development must consider the issues describe below (Source: The Good Compost Guide, EcoRecycle Victoria, 1999).

Home composting

General requirements

- E2. Compost facilities must have the following:
- ▶ Associated storage receptacles in each dwelling for the collection of at least one days worth of organic materials. The space for this receptacle must be in addition to space provided in each dwelling for the collection of garbage and recycling; and
 - ▶ A suitably size garden area to source compostable materials and to utilise the compost produced.
- E3. Communal compost facilities require regular maintenance and therefore a caretaker must be appointed to manage the facility.

Health Precautions

- E4. Composting involves a variety of living organisms breaking down organic matter. On rare occasions, composting has been associated with illness and allergies in humans. Particular consideration should be given to developments for elderly persons. Individuals who are allergic to fungal spores produced in compost or who have depressed immune systems may also be susceptible.
- E5. Therefore all composting facilities must have appropriate signs and instructions detailing the potential health issues associated with composting and the necessary precautions that should be followed when handling compost and soil materials.

Structures

E6. Home composting units are generally one of the following:

- ▶ Compost bins:

Compost bins can be either purchased or made from disused boxes, containers or plastic bags. There are numerous manufacturers of compost bins, which typically range in size from 200 L to 400 L.

- ▶ Compost enclosures:

Compost enclosures can be custom made to suit the requirements of a particular property and are typically constructed bays with sides and a cover. Planks of wood (eg railway sleepers) or chicken wire are suitable construction materials.

- ▶ Compost heaps:

Compost heaps are simply open piles of compostable materials, without constructed sides or roofs. Composting heaps may cause aesthetic issues.

Location of composting unit

E7. Leachate produced during composting can be detrimental to water quality. Therefore, to prevent runoff into stormwater drains and waterways, compost facilities must not be located on steep slopes or near stormwater drains;

E8. Compost facilities shall not be located on impervious surfaces;

E9. Compost facilities must be located in a shady areas that are protected from exposure to heat and excessive sun light;

E10. Composting facilities shall be positioned in a location that is easily and conveniently accessed by tenants and occupants of the site; and

E11. Compost facilities shall be located in consideration of onsite and adjacent property dwellings and buildings. Such consideration is to be given to the potential for odour emissions, leachate runoff and visual amenity. Compost facilities should be screened from view.

Size of facility

E12. The composting facility shall be appropriate size to adequately manage the amount of organic materials likely to be generated by the development.

Composting instructions

E13. Clear instructions showing suitable and unsuitable materials for composting shall be provided at all composting facilities.

E14. Signs describing health risks and precautions must also be provided at each compost facility.

Wormeries

General requirements

E15. Wormeries are ideal for flats and units with small backyards and for educational facilities such as primary or secondary schools. Wormeries are generally not communal facilities such as compost facilities.

Health Precautions

E16. Wormeries must have appropriate signs and instructions detailing the potential health issues associated with handling compost worms or worm castings.

E17. Domestic animal droppings are not to be disposed of in wormeries.

Structures

E18. Suitable containers for keeping worms are:

- ▶ Wooden boxes (or polystyrene boxes with holes);
- ▶ Stackable worm farms; and
- ▶ Stackable plastic worm factories.

Location of wormery

E19. Wormeries are likely to be suitable for all residential dwellings that have an outside area (eg garden area or balcony with drainage). Wormeries are also particularly suitable for primary and secondary schools;

E20. Wormeries must be located in a shady areas that are protected from exposure to heat and excessive sun light.

Size of facility

E21. As a general guide, wormeries should be sized as follows:

Residential

- ▶ A wormery of 0.3 m height should allow an area of 0.25 m² per person;
- ▶ Allow approximately 2600 worms per person (residential);
- ▶ 2600 worms would process approximately 4 L of waste per week.

Schools

- ▶ A school of about 300 students would generate approximately 20 - 40 kg of food scraps per week;
- ▶ A wormery that contains 23,000 to 46,000 worms would be needed to process this material.

Appendix F

Waste Handling and Compaction Equipment

Chutes

Service lifts

Compaction units

Waste Handling and Compaction Equipment

Overview

Waste handling and compaction equipment is typically used in larger residential developments, commercial developments, mixed-used developments and may be used in educational and recreational facilities.

Waste handling and compaction equipment is briefly described in this Appendix. This information is provided as a guide only. It is recommended that developers consult with the manufactures of waste handling and compaction equipment to determine specific equipment requirements.

The following is described in the Appendix:

Waste handling equipment	Compaction equipment
<ul style="list-style-type: none"> Chute systems; and Service lifts. 	<ul style="list-style-type: none"> Garbage compactors

Waste handling equipment

Introduction

Chutes or service lifts are to be used to transfer waste from building floors to the waste and recycling room or the pick up point.

In general, chutes are generally more suited to smaller developments while service lifts are generally more suited to high-rise developments.

Chute System

Suitability and operation

A chute is a structure (typically a duct) that is installed vertically within a building and allows garbage to be dropped from each floor into a container (bin, bulk bin or compactor) positioned at the base of the chute in a centralised Garbage and Recycling Room.

A chute system comprises of a chute, service compartments on each habitable floor, loading hoppers and/or service openings located in each service compartment, and a receiving bin into which waste is deposited.

Chutes are only suitable for transfer of garbage, and are not suitable for the transfer of recyclables. This is because recyclables (such as glass) typically get damaged when dropped down the chute and potential blockages of the chute (by paper/cardboard and plastics) can cause fire hazards.

A chute system works in the following manner:

- (a) Residents collect recyclables in their respective dwellings. To facilitate the collection of recyclable materials each unit shall be provided with space for the collection of garbage, paper and cardboard and co-mingled recyclables;
- (b) At their convenience, residents carry garbage, paper and cardboard and co-mingled recyclables to the service compartment located on each habitable floor of the building;
- (c) The service compartment contains 240 L MGBs for placement of co-mingled recyclables. Residents place these materials into the MGBs. The service compartment also contains a chute hopper into which residents place their garbage. The garbage falls down the chute and into a bin (MGBs on a carousel, a bulk bin or a compactor) located in the Garbage and Recycling Room;
- (d) A caretaker is responsible for managing the recycling bins (240 L MGBs) and the tidiness of the service compartments;
- (e) The Caretaker transfers the MGBs containing co-mingled recyclables to the Garbage and Recycling Room via the building's lift. The Caretaker may replace full recycling bins with empty recycling bins stored in the Garbage and Recycling Room;
- (f) On the day prior to waste collection, the Caretaker transfers the receptacles (MGBs) either to the kerbside or the onsite collection point. The waste collection contractor empties the waste bins;
- (g) The Caretaker is responsible for returning the MGBs to the Garbage and Recycling Room and service compartments following servicing;
- (h) The Caretaker is also responsible for managing the garbage and recycling room, ensuring waste bins do not overflow and the room remains clean and tidy.

A chute system is illustration in Figure F1.

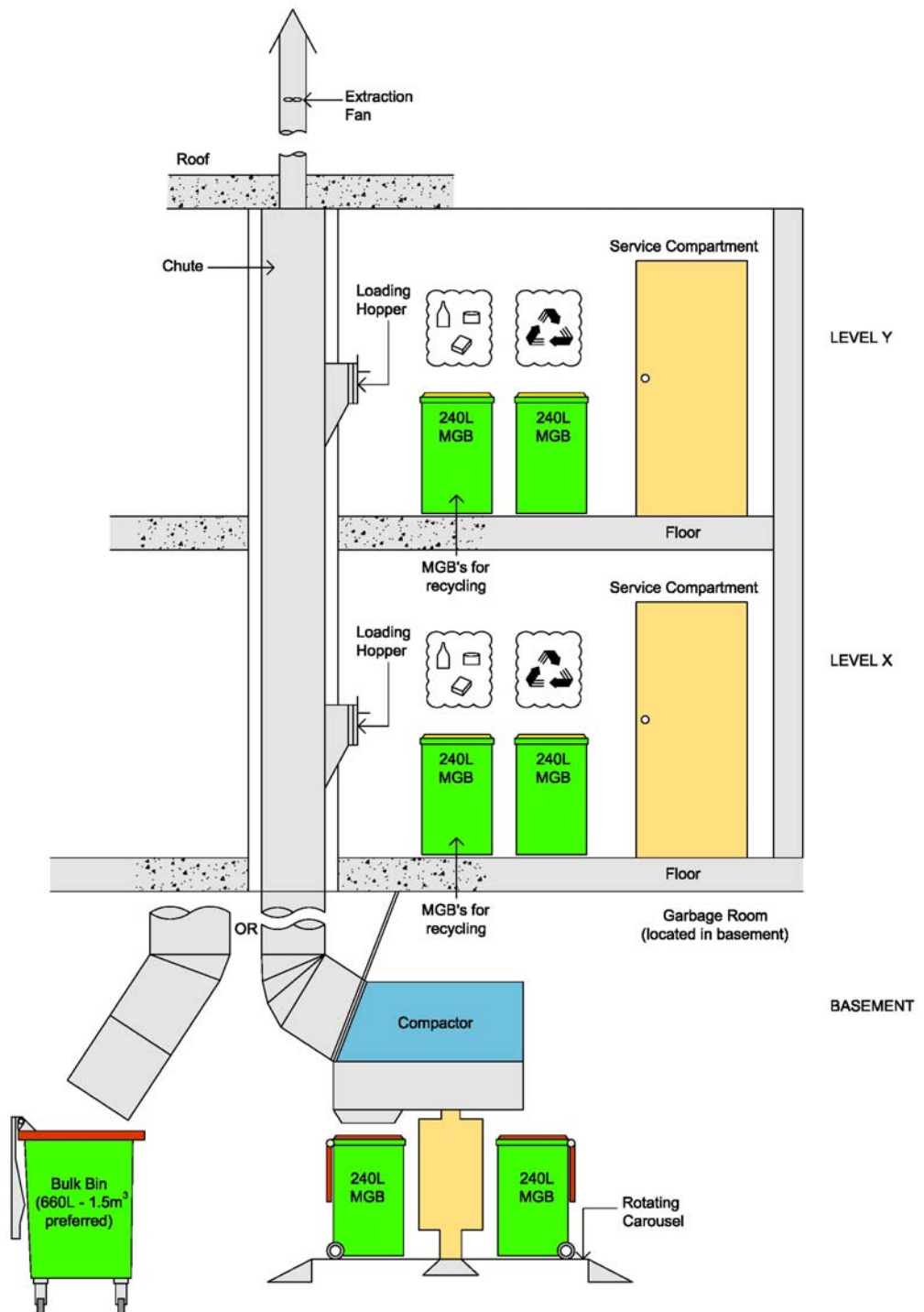


Figure F1 Illustration of a chute system and garbage compaction unit

General requirements

- F1. A garbage chute shall be provided in all residential dwellings with more than three habitable storeys.

Chute construction

- F2. Chutes are to be cylindrical in section with a diameter of 500 mm or greater;
- F3. Chutes, hoppers and service openings are to be constructed with aluminium, stainless steel or other approved metal or material that is non combustible, durable, impervious, non-corrosive, distortion and fire resistant and non-corrosive in nature;
- F4. Chutes shall extend without bends or reduction in diameter from above the building's top-floor ceiling and terminate in a garbage and recycling room. The top of the chute shall be fitted with a weather protection and mesh screen to prevent access by vermin but allow air flow;
- F5. Chutes shall be easily accessible from each habitable floor;
- F6. Joints and seams shall be constructed so as not to hinder the downward drop of garbage. Joints and seams shall be finished to a smooth even surface and shall be water proof;
- F7. Chutes shall have branches to loading hoppers that do not exceed 1000 mm in length and shall be angled to allow free fall of garbage into the chute;
- F8. The chute shall discharge garbage directly into a receptacle or garbage compactor in such a way that spillage does not occur;
- F9. Chutes are to be fitted with a fire dampener and / or cut off door at the base of the chute to prevent a fire in the bulk bin moving up the chute;
- F10. Chutes shall be completely enclosed in a shaft constructed of brick or concrete or other approved material and sealed at the lowest floor level;
- F11. Chutes (especially metal chutes) are to be enclosed with approved acoustical material;
- F12. Chutes are to be secured to each floor in a manner that does not transfer noise and vibration to the floor slabs or building frames; and
- F13. At each chute hopper, adequate instructions showing correct operation and maintenance of the chute and related equipment shall be displayed.

Cleaning and Maintenance

- F14. Chutes, chute branches and chute hoppers shall have an appropriate cleaning system that includes:
- ▶ A cleaning brush or similar cleaning device inbuilt to allow periodic brushing and cleaning of chute's internal surfaces;
 - ▶ A water supply point located at the top of the chute for cleansing purposes with a control cock located in the garbage and recycling room;

Ventilation

F15. Chutes shall be ventilated so as to ensure that:

- ▶ Air is not ventilated from the chute to within the building;
- ▶ Air does not flow from the chute through any service opening;
- ▶ The flow of air does not impede the downward movement of garbage.

F16. Adequate ventilation shall also be provided to the area between the chute and the enclosing walls of the shaft.

Loading Hoppers

F17. Loading hoppers are to be constructed of aluminium, stainless steel or other approved metal or material that is non combustible, durable, impervious, non-corrosive, distortion and fire resistant and non-corrosive in nature;

F18. Loading hoppers shall be designed to effectively close off the service opening in the chute when the device is open during loading;

F19. Loading hoppers shall automatically return to the closed position after use;

F20. Chute branches and loading hoppers are to be designed to prevent ricochet of falling materials and persons or children reaching into the chute;

F21. Loading hoppers shall permit the free flow of garbage into the chute and shall not project into the chute;

F22. Loading hoppers shall permit easy cleaning of the device and the chute branch;

F23. Loading hoppers shall be designed to prevent spillage of liquid or solid waste back into the service compartment;

F24. Loading hoppers should be fitted with an adequate seal against smoke, dust and odour which will effectively deaden noise on closing.

Service Openings (maintenance)

F25. Service Openings are to be constructed with aluminium, stainless steel or other approved metal or material that is non combustible, durable, impervious, non-corrosive, distortion and fire resistant and non-corrosive in nature;

F26. All service openings shall be fitted with an approved access hopper;

F27. Service openings shall not be less than 1000 mm or more than 1500 mm above the floor level.

Service Compartment

F28. Access to each loading hopper shall be provided from within a dedicated service compartment.

F29. The service compartment is to also house sufficient receptacles (240 L MGBs) for the collection of recyclable materials.

- F30. Service compartment should be located close to the service lift (if provided) or the residents lift to enable easy transfer of recyclables and bulky items to the Garbage and Recycling Room;
- F31. The service compartment shall be sized to ensure adequate space to allow:
- ▶ Easy access the loading hopper;
 - ▶ Efficient cleaning of the loading hopper, service opening and chute arm;
 - ▶ Easy access to all recycling bins.
- F32. The floor of the service compartment shall be constructed of concrete at least 75 mm thick;
- F33. The walls of the service compartment shall be constructed of approved solid impervious material and shall be cement rendered internally to a smooth even surface coved at all intersections;
- F34. The ceiling of the service compartments shall be finished with a rigid, smooth faced non-absorbent material capable of being cleaned;
- F35. Service compartments shall be constructed in such a manner to prevent access by vermin;
- F36. A close fitting self closing one hour fire door which can at all times be opened from the inside shall be provided to all service compartments;
- F37. Service compartments shall be fitted with a drain and water supply to cleaning purposes.

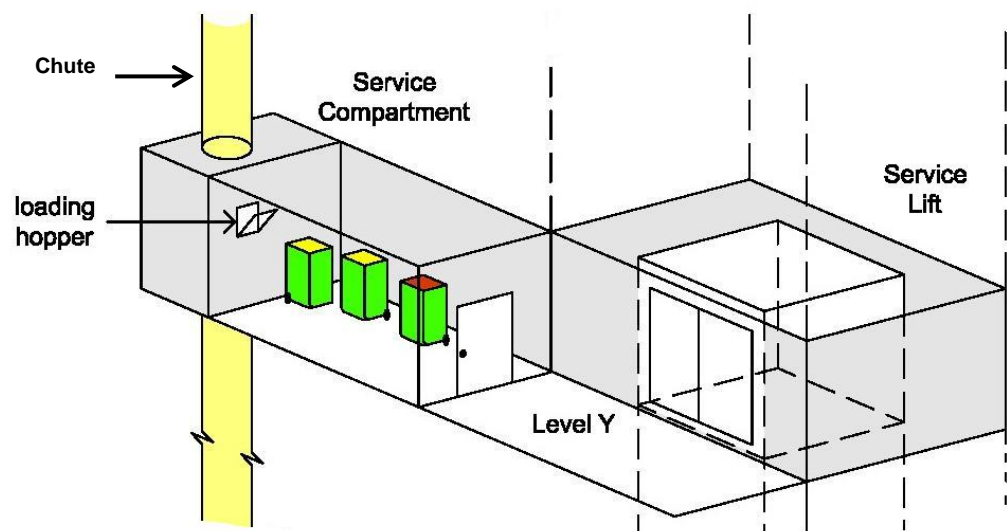


Figure F2 Illustration of a service compartment

Lighting

- F38. Service compartments shall be provided with artificial light controllable from outside the room;
- F39. A timing device shall be provided to switch off the service compartment light after a period of time.

Service Lifts

Suitability and operation

A service (or goods) lift is a lift dedicated to the movement of goods between building floors. A service lift is typically used by non-residential passengers such as maintenance crews and is provided in a building together with passenger lifts.

A service lift system comprises of a service lift, and service compartments on each habitable floor. A service lift system works in the following manner:

- (a) Residents collect waste and recyclables in their respective dwellings. Each unit shall be provided with enough space for the storage of a days garbage, paper and cardboard and co-mingled recyclables;
- (b) Residents are required to carry their garbage, paper and cardboard, and co-mingled recyclables to the service compartment located on each habitable floor of the building;
- (c) The service compartments shall contain sufficient space for the storage of one day's garbage in 240 L MGBs and co-mingled recyclables and paper and cardboard in 240 L Split MGBs, for all residents on that level;
- (d) A Caretaker is responsible for managing the MGBs, ensuring to timely change over of full MGBs and the tidiness of the service compartments;
- (e) Via the service lift, the Caretaker transfers the MGBs, on a daily basis, to the Waste and Recycling Room for temporary storage prior to weekly servicing. The Caretaker is also responsible for returning the MGBs to their respective floors and service compartments following servicing;
- (f) The Caretaker is responsible for managing the Garbage and Recycling Room, ensuring full MGBs are timely swapped with empty (spare) MGBs and waste receptacles do not overflow;
- (g) The Caretaker transfers the receptacles (MGBs) on a weekly basis, either to the kerbside or the waste collection point within the building so that the waste contractor may enter the property to collect the garbage and recyclables.

Figure F3 illustrates a chute and service lift system.

Construction

- F40. A service lift shall be installed in all high-rise buildings seven storeys and over storeys high.
- F41. Access to the service lift is to provided on each habitable floor and the floor (basement) containing the Garbage and Recycling Room;

- F42. The service lift is to be located close to the Garbage and Recycling Room so that the Caretaker is not required to move MGBs significant distances;

Size

- F43. The service lift is to be adequately sized to allow easy loading by a Caretaker transferring at least two MGBs in a single lift car.

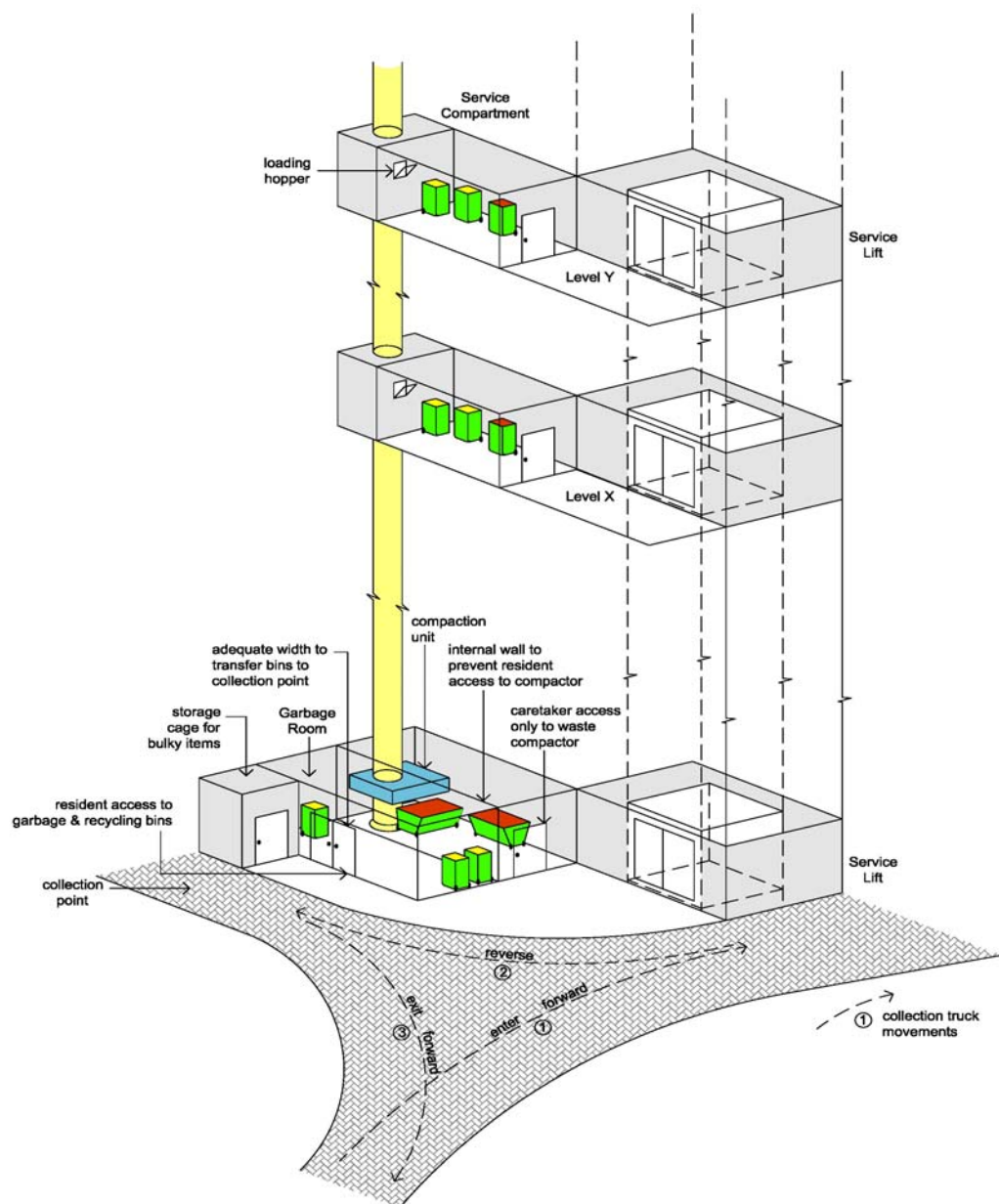


Figure F3 Illustration of chute and service lift within a high-rise development

Compaction equipment

Suitability and operation

A waste compactor is used to compress garbage so that a greater amount of garbage can be placed in a given bin. Compressing garbage reduces the number and or size of bins required to hold the waste generated by a development and thus reduces the floor space required (eg kerbside floor space and Garbage and Recycling Room floor space).

Waste compactors are only suitable for garbage compaction and not recyclables as it causes glass to break. Broken glass contaminates collected recyclables and prevents the materials from being recycled.

In residential buildings that require a chute system, an approved system of compaction equipment is recommended. The compaction equipment shall be installed in the Garbage and Recycling Room.

In buildings where by reason of nature or volume of garbage generated, an approved system of compaction equipment may be required to be installed in an approved position.

General requirements

- F44. Compaction equipment shall be provided in all residential developments with greater than 20 units;
- F45. Where compaction equipment is installed, access to the compaction equipment must be restricted to residents. Access for maintenance and management of the compaction equipment is to be provided to an appointed caretaker;
- F46. Where a chute system is not used to load garbage into the compaction equipment, approved bin-lifting equipment is to be installed.
- F47. Compaction equipment and bin-lifting equipment shall be of a type approved by the Health Commission of NSW;
- F48. In residential buildings, compaction equipment shall compact garbage directly into MGBs suitable for servicing by rear lift vehicles;
- F49. In non- residential buildings, compaction of waste can also use skip bins. Large compactors using skip bins will require special waste collection vehicle access requirements and onsite collection;
- F50. The compaction ratio to be used to calculate the required number of receptacles is 2:1;
- F51. Compaction equipment shall operate automatically;
- F52. Adequate instructions advising of the correct operation and maintenance of the equipment shall be displayed in a convenient position near the equipment.

Location

- F53. Compaction units shall be located within the Waste and Recycling Room. As the weight of compacted materials can be considerable, the collection point for waste

receptacles should not be more than 20 m from the Volumetric handling and reduction equipment and Waste and Recycling Room.

F54. Volumetric handling and reduction equipment shall be installed clear of walls and be located so as to allow adequate space for maintenance and operation.

Figure F4 and Figure F5 illustrate compaction units attached to chutes.

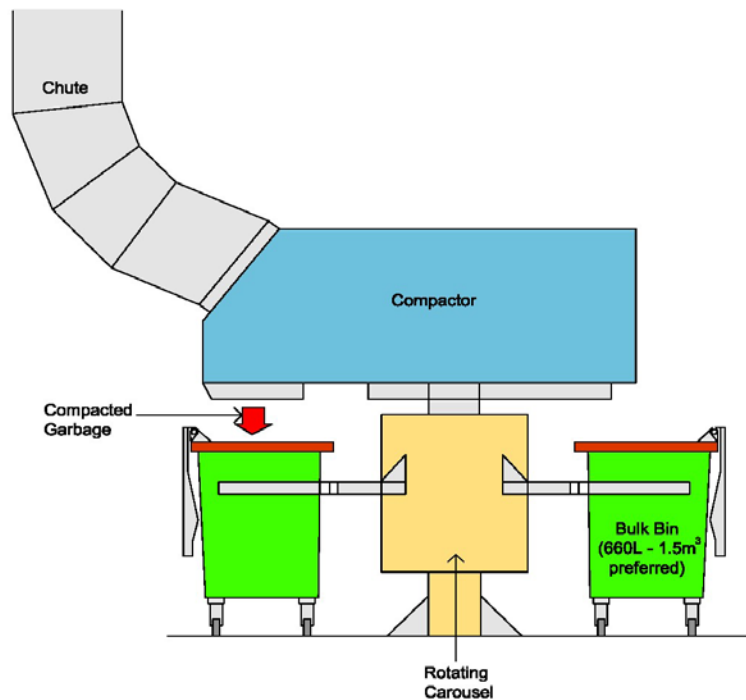


Figure F4 Illustration of compaction unit with rotating carousel for bins

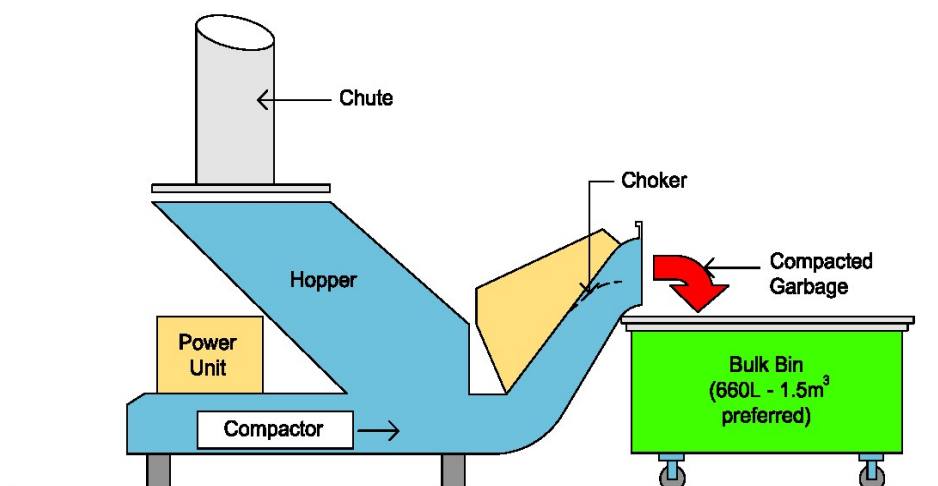


Figure F5 Illustration of compaction unit without rotation carousel

Acknowledgements

Willoughby City Council *'Code for Installation, Construction and Operation of Garbage Handling Systems for Residential Flat Buildings; Residential Buildings; Commercial Buildings and Buildings under Construction'.*

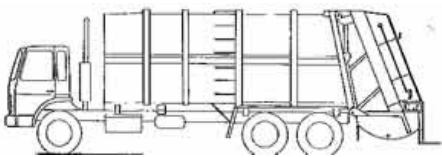
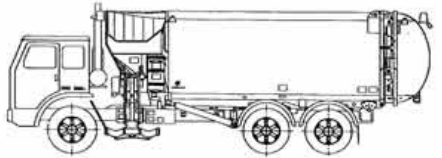
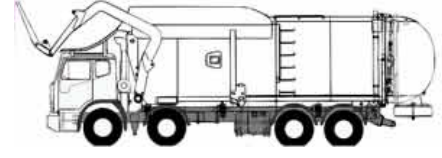
Resource NSW

Wastetech Engineering

Appendix G

Waste Collection Vehicles and Access Requirements

Types of waste collection vehicles

Vehicle	Vehicle description
<p>Rear Loading Compaction Vehicle</p>  <p><u>Council's Standard Service</u></p> <p><i>Council's standard service uses this vehicle to service 240 L MGBs at the kerbside.</i></p>	<p>Compaction vehicle that allows for loading of waste receptacles from the rear.</p> <p>Waste receptacles are lifted using a hydraulic lifting device that is fitted to the rear of the vehicle. Waste collection operators manually manoeuvre the receptacles from the kerbside to the rear of the vehicle and position the receptacle for lifting.</p> <p>This vehicle may also be used to service skip bins up to 1.5 m³ and bulk bins up to 3m³ capacity using a specially fitted winch system.</p>
<p>Side Loading Compaction Vehicle</p>  <p><u>Council's Standard Service</u></p> <p><i>Council uses this vehicle to service 120 L and 240 L garbage MGBs and 240 L split MGBs for commingled recyclables, and paper and cardboard at the kerbside.</i></p>	<p>Compaction vehicle with an automated bin-lifting device fitted to the left-hand side of the vehicle. The automated lifted mechanism allows for automatic loading of waste receptacles into the vehicle hopper and compactor body.</p> <p>A single operator can operate these vehicles as the vehicle operator is not required to exit the vehicle cabin unless bins are incorrectly positioned and cannot be reached by the side-arm.</p> <p>This type of vehicle is typically used to service MGBs of between 80L to 360L capacity.</p>
<p>Front loading compaction vehicle</p>  <p>Council currently does not use this type of vehicle. A private waste collection contractor may use this type of vehicle which requires special access requirements</p>	<p>Front loading collection vehicles are utilised for collection of bulk bins from 1000L to 4500L capacity. Bulk bins are emptied into the compactor body utilising the front-loading arms of the collection vehicle. As the bins are raised over the truck body, the height clearance requirements for these vehicles are typically between 6 – 7m.</p>

Source: Pictures courtesy of MacDonald Johnston Engineering

Typical Vehicle Dimensions

Vehicle capacity	6 m ³	8 m ³	10 m ³	15 m ³	19 m ³	19 m ³	19 m ³	25 m ³	27 m ³
Collection mechanism	Rear-lift	Rear-lift	Side lift	Rear-lift	Rear-lift	Side lift	Front	Side lift	Front
Overall length	7.0 m	7.5	7.3 m	8.9 m	8.0 m	8.7-9.6 m	9.9 m	10.5 m	12 m
Width	2.5m (with side mirrors 2.9 m)	2.5m (with side mirrors 2.9 m)	2.5m (with side mirrors 2.9 m)	2.5m (with side mirrors 2.9 m)	2.5m (with side mirrors 2.9 m)	2.5m (with side mirrors 2.9 m)	2.5m (with side mirrors 2.9 m)	2.5m (with side mirrors 2.9 m)	2.5m (with side mirrors 2.9 m)
Travel height	2.4 m + exhaust pipe	2.6 m + exhaust pipe	2.9 m + exhaust pipe	3.1 m + exhaust pipe	4.3 m	3.7 m	3.6 m	3.7 m	> 4 m
Height when loading	2.4 m + exhaust pipe	2.6 m + exhaust pipe	2.9 m + exhaust pipe	3.1 m + exhaust pipe	3.7 m	4.2 m	6.10 m	4.2 m	6-6.5 m
Reach of side arm	NA	NA	NA	NA	NA	2.0 m	NA	2.6 m	NA

Sources: Collex Pty Ltd, MacDonald Johnston Engineering, Resource NSW 2000, Sita Environmental Solutions

Note: The above dimensions are given are provided for guidance only as vehicle sizes and dimensions can vary between manufacturer. Clearance and access requirements for Council service vehicles to enter a property are provided below.

Garbage Truck Access and Turning Requirements

- G1. Council standard collection point for garbage and recycling is the kerbside of public roads which are designed in accordance with Council's and the RTA's requirements and to the Australian Standards;
- G2. Under certain conditions, Council may agree to collect waste from private property (such as a driveway or internal road) or within buildings (such as a basement of a high-rise development). In such circumstances, developments must contain adequate access and turning provisions for the waste collection vehicles.

Access and Turning Provisions

There are two distinct sets of manoeuvres that a waste collection vehicle will typically make to collect waste. One when the vehicle is circulating through a site in a forward direction and the other when the vehicle is manoeuvring either to enter or leave a collection point or to reverse direction in a turning bay or cul-de-ac.

- G3. Developments must be designed to allow vehicles to enter and exit a property in a forward direction;
- G4. It is preferable for developments to be design so that vehicles can manoeuvre on site in a forward direction at all times;
- G5. Where there is a requirement for collection vehicles to turn at a cul-de-sac head within a development, the design should incorporate either a bowl, 'T' or 'Y' shaped arrangement.
- G6. The design of a bowl, 'T' or 'Y' shaped turning head must take into account the following design aspects:
 - Placement of waste and recycling bins outside each home, or in a common collection area;
 - The presence of parked cars on access roads and within building basements;
 - Trucks should only make a three-point turn to complete a U-turn; and
 - Allowance for collection vehicle overhang and possible interference with bins and road furniture.

The latest Australian Standard AS2890 shall be used to design turning circles and truck movements in bowl, 'T' or 'Y' shaped confined spaces. Developers are to consult with Council to determine the dimensions of the waste collection vehicles operated prior to determining design parameters.

- G7. The design parameters that must be complied with are:
 - Industrial-type strength pavement designed for a maximum wheel loading of 7 tonnes per axle in order to accommodate waste and recycling collection trucks (The standard road pavement design specifications for an industrial driveway entry on public land is 150 mm thick concrete, 20 MPa concrete with F82 mesh);
 - A maximum desirable gradient of 10% for turning heads;
 - A maximum longitudinal road gradient of 15%;

- ▶ A minimum kerb radius of 8.5 m at the outside of turn where there is no kerbside collection; and
- ▶ A minimum kerb radius of 10.0 m at the outside if there is to be kerbside collection.

Access to collection points within building basements

- G8. Council's waste collection service may enter private property to collect commercial and residential generated garbage and recycling provided the following requirements are met:
- ▶ The property owner or tenants / occupants must indemnify Council and its waste collection contractor against damage to private property prior to waste collection services commencing;
 - ▶ The gradient of any basement entry or exit, that must be traversed by a waste collection vehicle shall have a maximum gradient of 1:20 for the first 6 metres from the street, then 1:8 or 1:6 with a transition of 1:12 for 4 metres at the lower end;
 - ▶ The gradient of the collection point shall be reasonably flat to allow manoeuvring and loading of receptacles;
 - ▶ The height to the structural members and basement ceiling should allow for the collection vehicles travel and operational height consistent with the type of collection vehicle employed.
 - ▶ Provision of space (vertical and horizontal), clear of obstructions (such as car parking space and overhead services) to allow manoeuvring as described above.
 - ▶ Collection vehicles should not have to travel more than 50 m once inside the basement to access the collection point.

The clearances provided include allowance for driver steering error and overhangs. All clearances must take account of service ducts, pipework, etc. Kerb faces should be located at least 0.6m clear of wheel paths.

Appendix H

Waste Management Plan

This waste management plan is to be used for Master Planning, Sub-Divisional design and Development Application purposes. A requirement of the waste management plan for different development types and proposed activities is outlined below.

A waste management plan detailing arrangements for managing wastes onsite during demolition and construction phases may be required as a pre-condition for the issue of the Construction Certificate.

This waste management plan is divided into the following sections.

Section	Objective
Section 1 – Development Application details	Provide details of development application file number and associated drawings
Section 2 – Outline of the Proposal	Provide overview of proposed development
Section 3 – Use of Premises	Ensure that the proposal for waste facilities in developments will be workable within the constraints of collection arrangements adopted within Randwick area. See Note below.
Section 4 – Ongoing Management	Encourage developers to consider issues associated with on-going management of waste on-site.

Council's submission requirements for specific developments and proposed activities

Land use or proposed activity	Details to be provided on the plans
Single Dwellings, Dual Occupancies, Terraces, Villa Homes	Waste cupboard space Waste storage area (for garbage and recycling)
Multi-unit dwellings / Commercial / Mixed Used Developments	Waste cupboard space (identified as retail, commercial, residential garbage, recycling, etc) Waste storage and recycling area or garbage and recycling room/s (specify retail, commercial, residential where separate) Garbage compaction equipment is to be identified by type, make, and model with rated compaction ratio Chutes are to be identified on drawings for each floor Waste collection point/s Vehicle access

Lodging the Waste Management Plan

Where drawing sets have been separately lodged, a completed Waste Management Plan can be lodged using the following means:

- ▶ Deliver to the counter at Level 1, Administration Building, 35 Frances Street Randwick
- ▶ Fax to Council's Waste Management Division on 9399 0977
- ▶ Email in Word Document Form to general.manager@randwick.nsw.gov.au
- ▶ Post to Waste Management Division, Randwick City Council, 35 Frances Street, Randwick, NSW 2031.

Please ensure that the drawing set reference information in Section 1 of this plan is completed.

Note for Section 3 – Use of Premises

This section should be used to provide detail of proposed waste generation and storage facilities. The applicant will need to examine the waste generation rates for the type of development and determine the most suitable means of removing waste and recyclable materials from residences/businesses to the point of collection.

Proposed waste management measures should be workable within the constraints of the collection arrangements adopted within the Randwick area.

Categories of waste that have separate collections within the Randwick area

Commercial/Retail Waste Management

Collection arrangements for commercial/retail developments within the Randwick area include:

- ▶ Commercial and industrial waste – services provided by Council staff or private contractors
- ▶ Commercial paper and cardboard – services provided by Council staff or private contractors
- ▶ Commercial beverage containers - private contractors
- ▶ Medical / clinical waste – private contractors
- ▶ Liquid trade waste - private contractors

Residential Waste Management

Council's standard collection arrangements for residential developments includes:

- ▶ Household garbage – weekly service, provided by Council contractor
- ▶ Household recyclables – fortnightly service, provided by Council contractor
- ▶ Household green waste – fortnightly service, provided by Council staff

- ▶ Household clean up – 2 scheduled services per year and 2 on-call services per year, provided by Council staff
- ▶ Excess paper and cardboard – services provided by Council staff on arrangement

Waste Generation

Waste generation rates for new developments can be estimated using the indicative waste generation rates provided in Appendix A. Generation rates and proposed on-site storage facilities should be estimated using a table in the sample format shown below.

Waste categories to be included as applicable: household garbage, household recyclables, household green waste, household clean up, commercial waste, commercial paper and cardboard, commercial beverage containers, commercial mixed recycling, medical / clinical waste, liquid trade waste.

Note: For mixed residential and commercial complexes, the arrangements for commercial, retail, residential, and other services should be dealt with separately.

DA Details

DA File Number: _____ (if known)

Drawings Set Number: _____ Drawings lodged: Yes / No

Date of Drawings: _____

Outline of Proposal

Site Address:

Applicant's Name and Address:

Telephone: _____ Facsimile: _____ Mobile: _____

Type of development: (please tick)

Residential & Commercial ☐ Commercial ☐

Residential ☐ Industrial ☐

Number of residential units: _____

Buildings and other structures currently on site:

Brief description of proposal

Signature of Applicant: _____ Date: _____

Use of Premises

Type of waste to be generated	Expected volume per week	Proposed on-site storage and treatment facilities	Destination
Specify types of waste by categories listed above	Litres or cubic metres	Waste storage area, chute/compactor arrangement, on-site organics processing	Collection by who, where is waste to be disposed
Commercial / Retail			
Garbage			
Recyclables <ul style="list-style-type: none"> – Paper and cardboard – Beverage containers – Other (please specify) 			
Medical / Clinical waste			
Liquid Trade waste			
Other (please specify)			
Residential			
Household Garbage			
Household Recyclables <ul style="list-style-type: none"> – Paper and cardboard – Beverage containers – Other (please specify) 			
Green waste			
Clean up collections material storage (1 cubic metre per dwelling per quarter)			
Other (please specify)			

Ongoing Management

This section should be used to provide detail of proposed on-going management of waste on-site. Please address each item listed below; where an issue is not relevant for a certain development type please write "Not applicable" next to that item.

Where mixed residential and commercial complexes, the arrangement for Commercial, Retail, Residential and Other Services should be dealt with separately. This can be done by copying the table below for each type of development, or by clearly outlining the requirements for each development in the Comments sections.

Issue	Comment
Waste management equipment and systems	Describe the equipment and systems to be used for managing garbage, recycling, green waste, clean up materials, and other wastes as applicable. Note: Mixed use developments must demonstrate how commercial / retail waste will be kept separate from residential waste.
Number, size, and type of bins/waste receptacles required for each waste stream (specify residential and commercial/retail requirements separately). Note: Where compaction is proposed, derivation of the number of garbage bins is to be shown	
Details of waste management equipment (for example where compaction equipment is to be used include detail of type, make, model, and rated compaction ratio)	
Storage facilities	Describe storage facilities allocated for waste management.
Space allocation for garbage, recycling, and other wastes	
Location of storage area/s	
Movement of material from source to point of collection	
Pathway for movement of waste from source to storage areas and point of collection (including gradients of paths, use of service lifts or chutes, etc)	
- Persons responsible for movement of waste from source to waste storage areas (for example, cleaning staff, residents, etc) - Persons responsible for movement of waste of waste from storage area to collection point	

Issue	Comment
(for example residents, building caretaker, waste collection staff/contractors)	
Access	
Arrangements for residents/commercial customers to access waste facilities	<div></div> <div></div> <div></div> <div></div>
Arrangements for waste collection staff to access waste facilities	<div></div> <div></div> <div></div> <div></div>
Collection	
<ul style="list-style-type: none"> - Frequency of collection for different waste types - Who will be providing the collection service 	<div></div> <div></div> <div></div> <div></div>
Specified collection point (kerbside, internal, etc)	<div></div> <div></div> <div></div> <div></div>
Traffic arrangements	
How collection staff/contractors will access waste collection points	<div></div> <div></div> <div></div> <div></div>
Specify if vehicles will be required to reverse while providing the waste collection service (including if three-point turns or U turns are required)	<div></div> <div></div> <div></div> <div></div>
Where internal servicing is proposed – provide detail of internal road layout including road geometry, pavement strength and common property details such as street furniture that is to be located adjacent to the kerbside	<div></div> <div></div> <div></div> <div></div>
Hygiene and amenity	
Arrangements for cleaning of waste storage areas and equipment	<div></div> <div></div> <div></div> <div></div>

Issue	Comment
Ventilation of storage areas	<div></div> <div></div> <div></div> <div></div>
Features to deter vermin entering waste storage areas	<div></div> <div></div> <div></div> <div></div>
Noise minimisation controls (including control of noise arising from use of waste management equipment such as chutes or compactors and contractors emptying waste bins)	<div></div> <div></div> <div></div> <div></div>
Safety	
Measures for protecting waste equipment (including bins) from theft or vandalism	<div></div> <div></div> <div></div> <div></div>
Fire controls (including separation distances for different waste types, fire alarm systems where applicable, etc)	<div></div> <div></div> <div></div> <div></div>
Ongoing Management	
Proposed systems to ensure effective ongoing management of waste on-site	<div></div> <div></div> <div></div> <div></div>

Appendix I

Example Completed Waste Management Plans

Example 1 – WMP for Development of Single Dwelling

Section 1. DA Details

DA File Number: DA 112-073 (if known)

Drawings Set Number: DR 43A Drawings lodged: Yes / No

Date of Drawings: 12 January 2004

Outline of Proposal

Site Address:

17 Perry Street

Randwick NSW 2031

Applicant's Name and Address:

Mr. Mark Goldsmith

13 Chalmers Street, Coogee NSW 2034

Telephone: 9246 1378 Facsimile: 9349 7343 Mobile: 0521 300 500

Type of development: (please tick)

Residential & Commercial	<input type="checkbox"/>	Commercial	<input type="checkbox"/>
Residential	<input checked="" type="checkbox"/>	Industrial	<input type="checkbox"/>

Number of residential units: 1 - single house

Buildings and other structures currently on site:

2 bedroom fibro house, concrete slab and driveway, timber fencing, 1 car garage
(also fibro)

Brief description of proposal

Demolish existing house and construct new three bedroom double brick house with
attached double garage and carport.

Signature of Applicant:  Date: 14 February 2004

Example 1 – WMP for Development of Single Dwelling

Use of Premises

Type of waste to be generated	Expected volume per week	Proposed on-site storage and treatment facilities	Destination
Specify types of waste by categories listed above	Litres or cubic metres	Waste storage area, chute/compactor arrangement, on-site organics processing	Collection by who, where is waste to be disposed
Commercial / Retail			
Garbage			
Recyclables <ul style="list-style-type: none"> – Paper and cardboard – Beverage containers – Other (please specify) 	Not applicable		
Medical / Clinical waste			
Liquid Trade waste			
Other (please specify)			
Residential			
Household Garbage	120 L/week	Council provided garbage bin stored in rear yard	Weekly collection by Council, disposed to landfill
Household Recyclables <ul style="list-style-type: none"> – Paper and cardboard – Beverage containers – Other (please specify) 	Mixed recyclables 120 L/week (approx. 60L/week paper, 60L/week commingled)	Council provided recycling bin stored in rear yard	Fortnightly collection by Council, reprocessed at recycling facility
Green waste	< 120 L/week	Council provided green waste bin stored in rear yard	Fortnightly collection by Council, reprocessed at green waste facility
Clean up collections material storage (1 cubic metre per dwelling per quarter)	Unknown	Temporary storage in garage or rear yard until clean-up day	Collection by Council on designated clean-up days
Other (please specify)	Food organics - unknown qty	Composting in rear yard	NA

Example 1 – WMP for Development of Single Dwelling

Ongoing Management

This section should be used to provide detail of proposed on-going management of waste on-site. Please address each item listed below; where an issue is not relevant for a certain development type please write “Not applicable” next to that item.

Where mixed residential and commercial complexes, the arrangement for Commercial, Retail, Residential and Other Services should be dealt with separately. This can be done by copying the table below for each type of development, or by clearly outlining the requirements for each development in the Comments sections.

Issue	Comment
Waste management equipment and systems	Describe the equipment and systems to be used for managing garbage, recycling, green waste, clean up materials, and other wastes as applicable. Note: Mixed use developments must demonstrate how commercial / retail waste will be kept separate from residential waste.
Number, size, and type of bins/waste receptacles required for each waste stream (specify residential and commercial/retail requirements separately). Note: Where compaction is proposed, derivation of the number of garbage bins is to be shown	1 x 120 L MGB - garbage 1 x 240 L MGB - recycling 1 x 240 L MGB - green waste
Details of waste management equipment (for example where compaction equipment is to be used include detail of type, make, model, and rated compaction ratio)	Not applicable
Storage facilities	Describe storage facilities allocated for waste management.
Space allocation for garbage, recycling, and other wastes.	Clear space in rear yard - approx 2 m x 1m wide
Location of storage area/s	Back yard, behind house
Movement of material from source to point of collection	
Pathway for movement of waste from source to storage areas and point of collection (including gradients of paths, use of service lifts or chutes, etc)	Side gate access from backyard to front of the house and out onto the street for collection at the kerbside. Side path is relatively flat and approx. 1.2 m wide.
- Persons responsible for movement of waste from source to waste storage areas (for	Householder to place waste in bins as required

Example 1 – WMP for Development of Single Dwelling

Issue	Comment
example, cleaning staff, residents, etc) - Persons responsible for movement of waste of waste from storage area to collection point (for example residents, building caretaker, waste collection staff/contractors)	and move bins to kerbside for collection.
Access	
Arrangements for residents/commercial customers to access waste facilities	Waste bins in rear yard, accessible via the back door of the house, or through the side gate.
Arrangements for waste collection staff to access waste facilities	Not required as bins will be collected from the kerbside.
Collection	
- Frequency of collection for different waste types - Who will be providing the collection service	Garbage - weekly collection by Council Recycling - fortnightly collection by Council Green waste - fortnightly collection by Council
Specified collection point (kerbside, internal, etc)	All bins will be collected from the kerbside along Perry Street
Traffic arrangements	
How collection staff/contractors will access for waste collection points	Direct street frontage on Perry Street
Specify if vehicles will be required to reverse while providing the waste collection service (including if three-point turns or U turns are required)	No
Where internal servicing is proposed – provide detail of internal road layout including road geometry, pavement strength and common property details such as street furniture that is to be located adjacent to the kerbside	Not applicable

Example 1 – WMP for Development of Single Dwelling

Issue	Comment
Hygiene and amenity	
Arrangements for cleaning of waste storage areas and equipment	Householder responsible for cleaning bins and bin area
Ventilation of storage areas	NA - bins stored in open area in rear yard
Features to deter vermin entering waste storage areas	All waste will be placed in correct bins and not left out in the open. Bin lids will be kept closed at all times.
Noise minimisation controls (including control of noise arising from use of waste management equipment such as chutes or compactors and contractors emptying waste bins)	Not applicable
Safety	
Measures for protecting waste equipment (including bins) from theft or vandalism	Side gate is lockable and will be kept closed at all times when not in use. Bins in the rear yard will not be visible from the street frontage.
Fire controls (including separation distances for different waste types, fire alarm systems where applicable, etc)	Not applicable - bins will be stored outside
Ongoing Management	
Proposed systems to ensure effective ongoing management of waste on-site	Residents responsible for their own waste separation and management.

Example 2 – WMP for Mixed-Use Development

Section 2. DA Details

DA File Number: DA 112-073 (if known)

Drawings Set Number: DR 43A Drawings lodged: Yes / No

Date of Drawings: 12 January 2004

Outline of Proposal

Site Address:

3 Oceanview Road

Maroubra NSW 2035

Applicant's Name and Address:

Frank Spice, Sound Construction

Unit 3, Developers Lane, Roseberry NSW 2474

Telephone: 9781 6533 Facsimile: 9345 8773 Mobile: 0421 487 767

Type of development: (please tick)

Residential & Commercial ☒ Commercial ☐

Residential ☐ Industrial ☐

Number of residential units: 1

Buildings and other structures currently on site:

Two storey commercial building currently used as a Laundromat (ground floor) and
Office (level 1). Existing building has a metal frame and brick construction.

Brief description of proposal

Retrofit building for use as 2 bedroom residential unit (level 1) above commercial
café/restaurant on ground level.

Signature of Applicant:  Date: 4 February 2004

Example 2 – WMP for Mixed-Use Development

Use of Premises

Type of waste to be generated	Expected volume per week	Proposed on-site storage and treatment facilities	Destination
Specify types of waste by categories listed above	Litres or cubic metres	Waste storage area, chute/compactor arrangement, on-site organics processing	Collection by who, where is waste to be disposed
Commercial / Retail			
Garbage	650 L /day - approx. 3900 L/week	Garbage bins stored behind building near rear parking area	To be collected by WastePeople Pty Ltd for disposal at landfill
Recyclables <ul style="list-style-type: none"> – Paper and cardboard – Beverage containers – Other (please specify) 	Mixed recyclables (mainly glass and plastic bottles) 150 L /day - approx. 900 L/week	Recycling bins stored behind building near rear parking area	To be collected by WastePeople Pty Ltd and taken to recycling facility.
Medical / Clinical waste	NA	-	-
Liquid Trade waste	10 L waste cooking oil per week	Waste oil container in bunded oil storage room	Oil collected by Oil Recyclers Australia. Oil is taken to their oil recycling facility at Ulladulla where it is turned into biodiesel.
Other (please specify)	-	-	-
Residential			
Household Garbage	120 L/week	Bin stored behind property near rear parking area	Weekly collection by Council
Household Recyclables <ul style="list-style-type: none"> – Paper and cardboard – Beverage containers – Other (please specify) 	Mixed recyclables 120 L/week (approx. 60L/week paper, 60L/week commingled)	Bin stored behind property near rear parking area	Fortnightly collection by Council
Green waste	Negligible (no garden)	-	-

Example 2 – WMP for Mixed-Use Development

Type of waste to be generated	Expected volume per week	Proposed on-site storage and treatment facilities	Destination
Clean up collections material storage (1 cubic metre per dwelling per quarter)	Unknown	Temporary storage unit until clean-up day	Collection by Council on designated clean-up days
Other (please specify)	NA	-	-

Example 2 – WMP for Mixed-Use Development

Ongoing Management

This section should be used to provide detail of proposed on-going management of waste on-site. Please address each item listed below; where an issue is not relevant for a certain development type please write “Not applicable” next to that item.

Where mixed residential and commercial complexes, the arrangement for Commercial, Retail, Residential and Other Services should be dealt with separately. This can be done by copying the table below for each type of development, or by clearly outlining the requirements for each development in the Comments sections.

Issue	Comment
Waste management equipment and systems	Describe the equipment and systems to be used for managing garbage, recycling, green waste, clean up materials, and other wastes as applicable. Note: Mixed use developments must demonstrate how commercial / retail waste will be kept separate from residential waste.
Number, size, and type of bins/waste receptacles required for each waste stream (specify residential and commercial/retail requirements separately). Note: Where compaction is proposed, derivation of the number of garbage bins is to be shown	Residential: 1 x 120 L MGB - garbage 1 x 240 L MGB - recycling Commercial: 3 x 240 L MGB - garbage 4 x 240 L MGB - recycling Residential and commercial bins will be stored in separate storage areas within the rear parking area behind the building.
Details of waste management equipment (for example where compaction equipment is to be used include detail of type, make, model, and rated compaction ratio)	Not applicable
Storage facilities	Describe storage facilities allocated for waste management.
Space allocation for garbage, recycling, and other wastes.	Total clear area for waste bin storage approx 6.5 m² - residential area 1.5 m ² for 2 bins - commercial area 5 m ² for 7-8 bins
Location of storage area/s	Behind building, in rear parking area
Movement of material from source to point of collection	
Pathway for movement of waste from source to storage areas and point of collection (including gradients of paths, use of service lifts or chutes, etc)	Side gate access from backyard to front of the house and out onto the street for collection at the kerbside.

Example 2 – WMP for Mixed-Use Development

Issue	Comment
	Side path is relatively flat and approx. 1.2 m wide.
<ul style="list-style-type: none"> - Persons responsible for movement of waste from source to waste storage areas (for example, cleaning staff, residents, etc) - Persons responsible for movement of waste of waste from storage area to collection point (for example residents, building caretaker, waste collection staff/contractors) 	<p><u>Residential</u> – unit occupier to place their waste in the correct bin and place it on the kerbside for collection. Unit occupier will need to carry waste down the stairs from the apartment to the bins.</p> <p><u>Commercial</u> – restaurant staff to place waste in bins (direct access through rear kitchen door). Waste contractor will enter the property to collect the bins.</p>
Access	
Arrangements for residents/commercial customers to access waste facilities	Waste bins in rear area behind building. Area is accessible to restaurant staff during café opening hours. Residents have access to the area at all times
Arrangements for waste collection staff to access waste facilities	<p><u>Residential</u>: Not required as bins will be collected from the kerbside.</p> <p><u>Commercial</u>: Private contractor will be given keys to access area in case gates are closed at time of collection.</p>
Collection	
<ul style="list-style-type: none"> - Frequency of collection for different waste types - Who will be providing the collection service 	<p><u>Residential</u>: weekly collection of garbage and fortnightly collection of recycling by Council.</p> <p><u>Commercial</u>: Daily collection of garbage (6x per week) and weekly collection of recyclables by the WasteMen Pty Ltd. Collection of waste oil will be on demand.</p>
Specified collection point (kerbside, internal, etc)	All bins will be collected from the kerbside along Perry Street
Traffic arrangements	
How collection staff/contractors will access for waste collection points	Residential bins will be collected from the kerbside.

Example 2 – WMP for Mixed-Use Development

Issue	Comment
	Commercial waste and recycling bins will be collected from inside the property and wheeled out to the waiting collection vehicle. Liquid waste will be pumped from the oil storage area to the collection vehicle.
Specify if vehicles will be required to reverse while providing the waste collection service (including if three-point turns or U turns are required)	Trade waste oil vehicle will be required to reverse into the property, vehicle will leave in a forwards direction.
Where internal servicing is proposed – provide detail of internal road layout including road geometry, pavement strength and common property details such as street furniture that is to be located adjacent to the kerbside	Trade waste oil vehicle will be required to reverse into rear driveway located in Green Lane. There is sufficient turning space for an 8m vehicle. There are no obstacles along the driveway. The driveway will be constructed of industrial strength concrete, capable of supporting a 20 tonne vehicle, and in accordance with relevant Australian Standards.
Hygiene and amenity	
Arrangements for cleaning of waste storage areas and equipment	<u>Residential:</u> unit occupier responsible for maintaining cleanliness of their bins, replacement to be arranged through Council. <u>Commercial:</u> Private waste contractor will provide bins and provides bin cleaning servicing and replacement of bins as required.
Ventilation of storage areas	NA - bins stored in open area
Features to deter vermin entering waste storage areas	All waste will be placed in correct bins and not left out in the open. Bin lids will be kept closed at all times. Food wastes from restaurant will be double bagged and collected daily.
Noise minimisation controls (including control of noise arising from use of waste management equipment such as chutes or compactors and contractors emptying waste	Daily collections of commercial waste will occur

Example 2 – WMP for Mixed-Use Development

Issue	Comment
bins)	after 7am each day. Pathway between bin storage area and kerbside is smooth and free of bumps or steps.
Safety	
Measures for protecting waste equipment (including bins) from theft or vandalism	Rear gate to parking area will be locked each night after closure of the restaurant. No public access to rear parking area from the main street frontage (access is via the restaurant or side gate, which will be kept locked).
Fire controls (including separation distances for different waste types, fire alarm systems where applicable, etc)	Bins will be stored outside therefore fire alarms are not required. Recyclables will be kept separated from general waste.
Ongoing Management	
Proposed systems to ensure effective ongoing management of waste on-site	<u>Residential:</u> Unit occupier will be provided with outline of Council services and requirements and will be responsible for their own waste separation and management. <u>Commercial:</u> Restaurant employees will learn about the restaurant waste management system as part of their training. The restaurant manager will be responsible for monitoring staff behaviour and ensuring bins are used correctly. Private waste contractor is responsible for providing all bins with clear labels for garbage and recycling. Commercial and residential bins will be stored in different areas outside the building.

Example 3 – WMP for High-Rise Residential Development

Section 3. DA Details

DA File Number: DA 112-073 (if known)
Drawings Set Number: DR 43A Drawings lodged: Yes / No
Date of Drawings: 12 January 2004

Outline of Proposal

Site Address:

116 - 120 Mitchell Road

Randwick NSW 2031

Applicant's Name and Address:

Peter Mitchell, Mitchell Building Co. Ltd

71 Merlot Pde, East Hills NSW 2213

Telephone: 9366 1334 Facsimile: 9783 4983 Mobile: 0411 389 329

Type of development: (please tick)

Residential & Commercial	<input type="checkbox"/>	Commercial	<input type="checkbox"/>
Residential	<input checked="" type="checkbox"/>	Industrial	<input type="checkbox"/>

Number of residential units: 60 units

Buildings and other structures currently on site:

None - vacant land

Brief description of proposal

Construct 10 storey high residential development with 60 units.

Signature of Applicant:  Date: 1 May 2004

Example 3 – WMP for High-Rise Residential Development

Use of Premises

Type of waste to be generated	Expected volume per week	Proposed on-site storage and treatment facilities	Destination
Specify types of waste by categories listed above	Litres or cubic metres	Waste storage area, chute/compactor arrangement, on-site organics processing	Collection by who, where is waste to be disposed
Commercial / Retail			
Garbage			
Recyclables <ul style="list-style-type: none"> – Paper and cardboard – Beverage containers – Other (please specify) 	Not applicable		
Medical / Clinical waste			
Liquid Trade waste			
Other (please specify)			
Residential			
Household Garbage	7200 L/week	Garbage collected and stored in 1.0m³ bulk bins in waste storage room in basement.	Weekly collection by Council, disposed of to landfill
Household Recyclables <ul style="list-style-type: none"> – Paper and cardboard – Beverage containers – Other (please specify) 	Mixed recyclables approx. 3600 L/week	Council provided 240L recycling bins stored in waste storage room	Weekly collection by Council for transport to reprocessor (special arrangement made with Council for weekly collection)
Green waste	Insignificant	NA	To be removed by contracted gardener as required
Clean up collections material storage (1 cubic metre per dwelling per quarter)	Unknown	Bulky items storage area in basement	Collection as required – arranged with Council
Other (please specify)	-	-	-

Example 3 – WMP for High-Rise Residential Development

Ongoing Management

This section should be used to provide detail of proposed on-going management of waste on-site. Please address each item listed below; where an issue is not relevant for a certain development type please write “Not applicable” next to that item.

Where mixed residential and commercial complexes, the arrangement for Commercial, Retail, Residential and Other Services should be dealt with separately. This can be done by copying the table below for each type of development, or by clearly outlining the requirements for each development in the Comments sections.

Issue	Comment
Waste management equipment and systems	Describe the equipment and systems to be used for managing garbage, recycling, green waste, clean up materials, and other wastes as applicable. Note: Mixed use developments must demonstrate how commercial / retail waste will be kept separate from residential waste.
Number, size, and type of bins/waste receptacles required for each waste stream (specify residential and commercial/retail requirements separately). Note: Where compaction is proposed, derivation of the number of garbage bins is to be shown	<u>Garbage:</u> 60 units x 120 L/week/unit = 7200 L/week <u>Compactor to be used, ratio of compaction 2:1</u> Bin size = 1.0m³ = 1000 L Number of bins required = 7200 L / (2 x 1000L) = 4 x 1.0 m³ bins <u>Recycling:</u> 60 units x 60 L /week/unit = 3600 L /week Bin size = 240 L No. of bins required = 3600 L / 240 L = 15 x 240 L MGBs
Details of waste management equipment (for example where compaction equipment is to be used include detail of type, make, model, and rated compaction ratio)	<u>Compactor - Eco-Pack waste compactor,</u> <u>minimum compaction ratio reported as 3:1.</u> <u>Garbage Chute - James Hardie “Sanishute”</u> <u>Disposal System</u>
Storage facilities	Describe storage facilities allocated for waste management.
Space allocation for garbage, recycling, and other wastes.	<u>Service areas on each level of the building,</u> <u>each with approx. 1 m² of floor space (able to</u> <u>store 1 recycling MGB on each level with room</u> <u>for some bulky items that can't fit in chute).</u> <u>Main garbage and recycling room in basement.</u> <u>Floor area of approx 15 m².</u>
Location of storage area/s	<u>Service areas are located in the centre of each</u>

Example 3 – WMP for High-Rise Residential Development

Issue	Comment
	<p>level.</p> <p>Main storage room is in the basement carpark.</p>
Movement of material from source to point of collection	
Pathway for movement of waste from source to storage areas and point of collection (including gradients of paths, use of service lifts or chutes, etc)	<p>Residents have access to storage and disposal of recyclables and garbage on each level.</p> <p>Garbage is transferred to basement storage via a garbage chute. Bulky waste and recyclables will be transported daily by cleaners from each service room to the basement using the building lift.</p> <p>Cleaners will transport recycling bins to the kerbside for collection via the driveway (gradient 1:14). Garbage bins are collected from within the basement.</p>
<ul style="list-style-type: none"> - Persons responsible for movement of waste from source to waste storage areas (for example, cleaning staff, residents, etc) - Persons responsible for movement of waste of waste from storage area to collection point (for example residents, building caretaker, waste collection staff/contractors) 	<p>Residents are responsible for placing garbage in the garbage chute and leaving recyclables and bulky wastes in either the service areas on each level or taking it to the basement storage area.</p> <p>Cleaners will transport materials from the service areas to the basement storage area.</p> <p>Cleaners will place recycling bins on the kerbside for collection.</p>
Access	
Arrangements for residents/commercial customers to access waste facilities	<p>Residents have 24 hr access to service areas On each floor and to main storage in the basement. Access to room containing chute exit and compactor is limited to cleaners only.</p>
Arrangements for waste collection staff to access waste facilities	<p>Waste collectors will be given access card to enter basement carpark.</p>
Collection	
- Frequency of collection for different waste types	<p>Garbage - weekly collection by Council</p>

Example 3 – WMP for High-Rise Residential Development

Issue	Comment
- Who will be providing the collection service	Recycling – fortnightly collection by Council
Specified collection point (kerbside, internal, etc)	All recycling bins will be collected from the kerbside along Mitchell Road. Garbage bulk bins will be collected from the basement storage room.
Traffic arrangements	
How collection staff/contractors will access for waste collection points	Main access to basement carpark via Eastener Road (on east side of property, perpendicular to Mitchell Road).
Specify if vehicles will be required to reverse while providing the waste collection service (including if three-point turns or U turns are required)	Garbage collection vehicles will be required to Complete "Y" shaped turn in the basement.
Where internal servicing is proposed – provide detail of internal road layout including road geometry, pavement strength and common property details such as street furniture that is to be located adjacent to the kerbside	Internal road layout shown in Drawing XX. Max. gradient of driveway is 1:8. Basement floor will be constructed of industrial strength cement designed for maximum wheel loading of 7 tonnes per axle.
Hygiene and amenity	
Arrangements for cleaning of waste storage areas and equipment	Main garbage and recycling room will be graded and drained to sewer. Bin washing facilities will be available in the basement. Full-time cleaning staff will be responsible for cleaning and maintaining waste areas.
Ventilation of storage areas	Ventilation system will be provided for storage room in accordance with BCA requirements. Ventilation system will be separate from ventilation system used for dwellings. Chute system will be fitted with 40 watt extraction ventilation fan.

Example 3 – WMP for High-Rise Residential Development

Issue	Comment
Features to deter vermin entering waste storage areas	<p>All waste will be placed in correct bins and not left out in the open.</p> <p>Bin lids will be kept closed at all times.</p> <p>Cleaning staff to remove waste and recyclables from service areas daily.</p>
Noise minimisation controls (including control of noise arising from use of waste management equipment such as chutes or compactors and contractors emptying waste bins)	<p>Bin storage area will have rubber nibs on the walls.</p> <p>Chute system is fitted with solid dense walls to reduce noise (chute specification attached for your reference).</p> <p>The compactor will not be operated between the hours of 10pm – 7am.</p>
Safety	
Measures for protecting waste equipment (including bins) from theft or vandalism	<p>Compactor room is locked to residents (cleaner access only).</p> <p>Access to the basement is restricted to residents and other security pass holders.</p>
Fire controls (including separation distances for different waste types, fire alarm systems where applicable, etc)	<p>Fire and sprinkler systems will be installed in accordance with BCA requirements – details of proposed fire control systems are shown in Drawing YY. Cardboard and other recyclables will be kept separate from general waste.</p> <p>The garbage chute is constructed of non-combustible material in accordance with BCA requirements.</p>
Ongoing Management	
Proposed systems to ensure effective ongoing management of waste on-site	<p>Waste storage area and bins will be well sign posted with garbage and recycling bins to be put in separate areas of the storage room.</p> <p>All new residents will be provided with an information kit outlining the garbage and recycling system, including details of the location and operation of the waste facilities.</p>

