

PART D: ENERGY

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SECTION 1 – ENERGY MANAGEMENT

Objectives

Council promotes optimisation of environmental performance of new and existing buildings through minimisation of energy consumption as a means of achieving the principles of ecologically sustainable development and minimising the negative impacts of development on the environment, in accordance with the objectives of the *Leichhardt Local Environmental Plan 2013*. Cutting energy demand is the first and most affordable step towards reducing emissions. Council encourages residents and property owners to minimise energy consumption by undertaking alterations and additions to existing buildings or the construction of new buildings in a manner which will minimise the use of manufactured energy to heat, cool or light the building. The building siting and layout, solar access, landscaping and ecologically sensitive design provisions of this Development Control Plan have been developed to reduce energy consumption whilst maximising the amenity of building occupants.

Where passive heating, cooling or lighting is not sufficient for the needs of occupants, Council encourages the use of renewable energy sources. The installation of renewable energy technologies, such as photovoltaic panels, is to be undertaken in ways which reflect Council's heritage, amenity and urban design objectives.

Council supports a reduction in car dependency as a way of minimising energy consumption, as reflected in the objectives of the *Leichhardt Local Environmental Plan 2013*. To achieve this Council promotes the enhancement of walkable neighbourhoods through the implementation of the urban design principles outlined in Part C – Place of this Development Control Plan. The urban design principles relate to the accessibility, amenity, connectedness, adaptability and sustainability of places and spaces in the municipality.

Objectives

- O1 To promote energy minimisation in the development and operation of residential and non-residential buildings.
- O2 To encourage the implementation of renewable energy production technologies in residential and non-residential buildings.

Controls

Energy minimisation

- C1 Energy consumption minimisation measures are to be implemented in:

- a. new residential and non-residential buildings; and
- b. alterations and additions to residential and non-residential buildings.

Council will apply the relevant solar access, landscaping, building siting and layout provisions of this Development Control Plan to minimise energy consumption.

Energy efficiency

- C2 Energy efficiency measures to reduce energy consumption are to be implemented in alterations and additions to an existing dwelling or commercial building. Energy reduction measures are to include but should not be limited to:
 - a. the installation of low energy light bulbs;

- b. the installation of smart technology such as HVAC (heating, ventilation and cooling) controls to limit/set indoor climate;
- c. improved insulation;
- d. repairs to damaged windows, doors and seals;
- e. ensure windows are operable to enable cross ventilation (where this does not compromise visual and/or acoustic privacy);
- f. avoid blocking up windows or reinstate windows (where previously blocked up) for cross ventilation purposes (where this does not compromise visual and/or acoustic privacy)
- g. unblock ceiling vents and flues to enable the escape of heat through the roof;
- h. ensure the location of windows, doors and internal layout of the building promotes air movement for cooling.

Renewable energy production technologies

C3 Energy production technologies should, wherever possible, use renewable energy sources. Council may approve the implementation of new or emerging renewable energy technologies where the necessary infrastructure:

- a. will be of a design, including colour of trim and siting, that is sympathetic to the character of the building and its streetscape context;
- b. will not;
 - i. have an adverse impact on the amenity and solar access of the property or nearby or adjacent properties and occupants;
 - ii. restrict the development potential of nearby and adjacent properties;
 - iii. result in the production of noise, air or water pollution or other adverse environmental impacts;
 - iv. reduce the structural integrity or have an adverse impact on the setting or significance of any property listed as a Heritage Item in Schedule 5 of the *Leichhardt Local Environmental Plan 2013*; and
 - v. result in negative impacts on amenity, building fabric or heritage values of the building and its setting including streetscape;
- c. the use, location and placement of solar collectors is to take into account the potential permissible building form on adjacent properties.

C4 Development consent is required for the installation of renewable energy technologies where the works will not meet the requirements of the following:

- a. Exempt and Complying Development provisions of the *State Environmental Planning Policy (Infrastructure) 2007*

Photovoltaic panels

C5 Photovoltaic systems are prohibited on any part of a slate roof with decorative features where the property is in a Heritage Conservation Area or is identified as a Heritage Item in Schedule 5 of the *Leichhardt Local Environmental Plan 2013*.

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- C6 Installation of a photovoltaic system on a property located in a Heritage Conservation Area or that is listed as a Heritage Item in Schedule 5 of the *Leichhardt Local Environmental Plan 2013* may be granted development consent where it can be shown that the installation will:
- a. be located where:
 - i. the potential for overshadowing by adjacent trees, buildings or general infrastructure is minimal; and
 - ii. orientation of the photovoltaic panel (direction and angle) will ensure an optimum power output;
 - b. be of a design, siting and materials, including colour of trim, that is sympathetic to the character of the building and its streetscape context and which will have minimal visual impact;
 - c. not reduce the structural integrity of or involve structural alterations to any building to which it is attached that may adversely impact the significance of the building;
 - d. not result in negative impacts on amenity, building fabric or heritage values of the building and its setting in the streetscape; and
 - e. not result in any irreversible alteration or damage to the fabric of the building.
- C7 The impact of development on the operation of installed photovoltaic cells on adjoining or near-by sites will not be a ground for refusal of development or modification applications.
- C8 Photovoltaic panels should be cleaned and serviced regularly to ensure optimal power output.
- C9 When obsolete, photovoltaic panels should be removed from the roof and where possible, sent to a recycling facility.

SECTION 2 – RESOURCE RECOVERY AND WASTE MANAGEMENT

Background

Waste and resource consumption is a major environmental issue. This is particularly the case as landfill sites become scarce and the environmental and economic costs of waste generation and disposal rise. Government, business and society alike are exposed to the issue of managing the increasingly large volumes of waste generated. Sustainable resource management and waste minimisation are essential in the quest for ecologically sustainable development and accordingly achieving the objectives of *Leichhardt Local Environmental Plan 2013*.

Waste is inextricably linked to energy and water use, greenhouse gas production, pollution and habitat destruction.

Differing types of development are dealt with below and have differing requirements. All applications will require the submission of a Site Waste Minimisation and Management Plan.

D2.1 GENERAL REQUIREMENTS

Objectives

- O1 Reduce the demand for waste disposal in line with Federal and NSW State Government reduction targets and the Waste Avoidance & Resource Recovery Act 2001.
- O2 Consider the use of resources at all phases of development.
- O3 Provide criteria for the disposal of demolition and construction waste and the design and management of recycling, composting and waste storage and collection facilities within developments.
- O4 To encourage sorting and separation of material to maximise reuse and recycling of building and construction materials, household generated waste and industrial and commercial waste.
- O5 Encourage building design and construction techniques that will minimise waste generation.
- O6 Encourage new technologies to influence and solve waste management including small scale local technologies that can provide local solutions.
- O7 Minimise the overall environmental impacts of waste, in line with the principles of ecologically sustainable development. Waste is inextricably linked to energy and water use, greenhouse gas production, pollution and habitat destruction.
- O8 Provide advice on the preparation of Site Waste Minimisation and Management Plans and other appropriate documentation for submission with applications for development.
- O9 To consider the ongoing management of recycling and waste for the life of the building and uses.

Controls

Site Waste Minimisation and Management Plans

- C1 A Site Waste Minimisation and Management Plan (SWMMP) will be required to be submitted for all forms of development that involve any construction, demolition or change to the use of the premises and for the ongoing use of a building or place.

The SWMMP is to be submitted with the development application.

Note: The design and location of recycling and waste management facilities should be investigated at an early, (i.e. pre development application) stage of the proposal.

C2 The SWMMP should outline, as appropriate to the proposed development, the:

- volume and type of waste and recyclables to be generated;
- storage and treatment of waste and recyclables on site;
- disposal of residual waste and recyclables;
- operational procedures for ongoing waste minimisation, resource recovery (reuse and recycling) and management once the development is complete; and
- the method of reuse, recycling or disposal and the recycling/ waste management service provider.

A template of a SWMMP is provided in Part 1 of Appendix D “Site Waste Minimisation and Management Template”.

In the absence of project specific calculations, the rates specified in Appendix D2.4 “Waste and Recycling Generation Rates” should be used to inform the compilation of a SWMMP.

Plans and Drawings

C3 For applications that require a SWMMP, plans and drawings (to scale) must be submitted with the application.

C4 For applications that include demolition and construction, the plans and drawings must show the material storage areas for reusable and recyclable materials during the demolition and construction phases, indicating the areas to be excavated, the types and numbers of storage bins required, appropriate signage and the vehicular access to material storage areas.

C5 For the ongoing operation of the use, the plans and drawings must indicate the location and provision for the storage and collection point of waste and recyclables, the access routes and path of travel for moving bins (if collection is to occur away from the storage area/room), design of internal areas, traffic flow, path of travel for collection vehicles and amenity details.

C6 A checklist at Appendix D (Part 2 – Plans and Drawings) must be completed in regards to the requirements for the plans and drawings for all development other than single dwellings, dual occupancies and secondary dwellings.

Further details of these requirements are provided in Appendix D (Part 1) “Site Waste Minimisation and Management Plan Template”.

D2.2 DEMOLITION AND CONSTRUCTION OF ALL DEVELOPMENT

Controls

- C7 Where material cannot be reused or recycled it should be disposed of at a lawful/ licensed waste facility as per the NSW government regulatory authority
- C8 Waste and or recycling bins such as skips may only be placed by persons or companies that hold a current licence from Council. On street placement, insurance and other standard conditions apply.
- C9 An area within the development site must be allocated for the storage of materials for reuse, recycling and disposal. Recyclable materials should be separately stored apart from other left over materials for collection by a recycling contractor. This can be facilitated by the process of “deconstruction” where various materials are carefully dismantled and sorted.
- C10 Separated materials should be kept clean where appropriate and protected from weather damage.
- C11 The bins and storage areas at a development site shall be clearly signposted outlining their purpose and content.
- C12 Minimise site disturbance and limit unnecessary excavation.
- C13 Pursue adaptive reuse opportunities of buildings and structures.
- C14 Evidence such as weighbridge dockets and invoices for waste disposal or recycling services must be retained.

D2.3 RESIDENTIAL DEVELOPMENT

Controls

- C1 For the development of new dwellings, the site must provide suitable area/s capable of accommodating Council's standard waste and recycling bins as indicated in Appendix D (Part 3) "Indicative Bin Sizes" with convenient access for all dwellings, suitable manoeuvrability space and within easy access to the collection point.
- C2 All dwellings must provide an internal storage area for recyclable and compostable material, of a sufficient size to hold a minimum of a single day's recyclable, compostable and waste material.
- C3 Areas for composting should be available for all residents in rear yards for single dwellings and in the communal area for multi-unit housing. This area should not impact on adjoining properties.
- C4 In sink waste disposal systems ~~and garbage chutes~~ are strongly discouraged.
- C5 Consideration of the use of standard material sizes, prefabricated construction methods and by ordering materials "to fit", to limit waste.

Multi Dwelling Housing/Residential Flat Buildings

- C6 Communal on-site waste storage and recycling areas or rooms should be provided where:
 - a. each dwelling does not have a separate area at ground level for the storage of bins;
 - b. the number of dwellings and number of bins would visually detract from the appearance of the development and surrounding streetscapes (i.e. generally when more than 20 dwellings are proposed);
 - c. it is necessary for ensuring an efficient collection service; and
 - d. it is required by Council.
- C7 Communal waste storage and recycling areas (or rooms) should be provided which are:
 - a. located behind the main building alignment;
 - b. appropriately screened to minimise visual impacts on the development and streetscape;
 - c. designed in an appropriate manner and size to allow suitable manoeuvrability of bins;
 - d. designed to accommodate a servicing garbage truck;
 - e. designed with clearly defined loading areas for collection adjacent to waste and recycling storage rooms; and
 - f. within easy access for all dwellings and to the collection point.

Note: These communal waste storage and recycling areas should be located within the basement car park (or in the case when there is no basement, another accessible area that abides by the design criteria above).

Appendix D (Section 4) "Waste Recycling/Storage Rooms in Multi Dwelling Housing/Residential Flat Buildings" and (Section 7) "Example of a waste and recycling

storage room(s)" provides further specifications. Appendix D (Section 5) "Garbage Truck Dimensions for Residential Resource Recovery/Waste Collection", Appendix D (Section 7) "Example of a Waste and Recycling Storage Room(s)" and Appendix D (Section 8) "Vehicle Access and Turning Circles" should be referred to for further information.

C8 Developments that are four storeys or higher are to provide waste chute rooms on each floor. Chute rooms are to provide a chute for the disposal of general waste as well as space for co-mingled and paper and cardboard 240L recycling bins and 240L organic waste bin(s). Enough bins are to be provided to accommodate the equivalent of two days' of material for the dwellings serviced.

Note: *Waste chute rooms are to be designed in accordance with the provisions under Appendix D (Section 9) "Waste chutes".*

~~C8~~C9 Council may require ~~some larger scale~~ developments to provide interim storage areas within the development or on separate floors. The interim storage areas must be large enough to accommodate and manoeuvre the number and size of bins required by Council (for waste, recycling, paper/cardboard and organics and the like).

An appropriate system for the transportation of recycling and waste bins from each floor must be provided.

~~C9~~C10 Communal on site waste storage and recycling areas or rooms must be capable of accommodating and manoeuvring Council's required number of standard waste and recycling bins as set out below.

~~C10~~C11 For multi-unit developments that propose 20 or more dwellings or where required by Council, a dedicated room or caged area must be provided for the temporary storage of discarded bulky items which are awaiting removal for reuse or disposal. This room is to provide a minimum area of 0.63m² per unit. The storage area must be readily accessible to all residents and must be located close to the main waste storage room or area.

~~C11~~C12 Communal waste storage and recycling areas or rooms must have bin wash facilities (trapped gully and water taps) and be clearly labelled with appropriate signage that indicates recycling and waste bin areas. It is preferable that residents and building maintenance staff have access to a hot and cold water supply for the cleaning of bins and the waste storage areas. These areas should be weatherproof and easy to clean, with the wastewater discharged to the sewer.

~~C12~~C13 The waste storage and recycling areas or rooms must be serviceable by Council's own waste and recycling vehicles and/or private collection contractors. Where collection vehicles must enter private property, design should be carried out in accordance with the requirements specified in Appendix D (Section 8) "Vehicle access and Turning Circles" and the *Australian Standard 2890.2 Parking Facilities* as amended.

~~C13~~C14 Within multi unit residential developments, an area is required to be nominated onsite for communal composting. This area is to be incorporated in any submitted landscaping plans. The operation of the facility is to be the responsibility of the owners' corporation. In determining the siting of this communal composting facility the following should be considered:

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- a. location and proximity to proposed and adjoining development, odour and the location of the drainage system;
- b. the facility should be purpose built in design; and
- c. appropriate signposting, to ensure that inappropriate waste is not added.

~~G3C15~~ [The use of waste and recycling compaction equipment is prohibited.](#)

Waste

Single Dwellings

~~C14~~C16 The amount of waste (domestic garbage) service provision is a maximum of 120 litres per dwelling per week.

Note: Households can choose a 55-litre, 80-litre or 120 litre bin which will result in differing rates of payment of the Domestic Waste Charge according to bin capacity.

Multi Dwelling Housing/Residential Flat Buildings

~~C15~~C17 Multi-unit housing generally share 240 litre garbage bins (red lid) for domestic garbage. All calculations for waste and recycling storage rooms are to be based on the dimensions of a 240L bin. The maximum garbage service for a single unit is 120 litres per week.

Note: The waste/recycling room needs to be designed to ensure that it can accommodate this maximum 120L service per unit. Waste bin allocation will be rounded up to the nearest 240L bin.

Recycling

Single Dwellings

~~C16~~C18 A 120L yellow lid recycling bin for comingled containers (i.e. bottles / cans) per household.

~~C17~~C19 A 120L blue lid bin for paper and cardboard per household.

Multi Dwelling Housing/Residential Flat Buildings

C20 Multi-unit housing developments generally share both 240L co-mingled and 240L paper and cardboard recycling bins. The maximum recycling service is 60L per dwelling per week (collected fortnightly). It is evenly split between the two recycling bin types.

C21 Allocation of the 240L recycling bins is to be rounded up to the nearest 240L bin for each bin type (co-mingled and paper & cardboard).

Example of recycling bin allocation calculation:

A 12 dwelling development generates 720L of recycling per week (60L x 12 dwellings). As recycling is collected fortnightly, the bin capacity to store this recycling is doubled. 1,440L of recycling bin capacity is therefore required. This is split between the two recycling bin types (comingled and paper & cardboard), resulting in the need 3 x 240L of each bin type, or 6 x 240L recycling bins in total.

C22 Accommodation for potential swap over to 660L bins must be made if waste or recycling material storage requirements meet or exceeds 660L for any waste or recycling bin type.

Between 1-4 residences

~~C18 A 120L yellow lid recycling bin for comingled containers (ie bottles / cans).~~

~~C19 A 120L blue lid bin for paper and cardboard.~~

~~C20 — Separate bins are to be provided for paper and cardboard and co-mingled containers.~~

No. of units	No. of recycling bins	
	Yellow MGB	Blue MGB
2	1 X 120	1 X 120
3	1 X 120	1 x 120
4	1 x 120	1 x 120

More than 4 residences

~~C21 — A 240L yellow lid recycling bin for comingled containers (ie bottles / cans).~~

~~C22 — A 240L blue lid bin for paper and cardboard.~~

~~Note: Separate bins are to be provided for paper and cardboard and co-mingled containers calculated to the equivalent of minimum of 60 litres per residence~~

No. of units	No. of recycling bins	
	Yellow MGB	Blue MGB
5	1 X 240	1 X 240
6	1 X 240	1 x 240
7	1 x 240	1 x 240
8	1 x 240	1 x 240

Garden Organics Bin

Single Dwellings

C23 A ~~120L~~ 240L lime green lid bin for organics per household

Multi Dwelling Housing/Residential Flat Buildings

C24 Where the development generates garden organic material (contains open space areas) a 240L bin (green lid) is provided which is generally shared as required based on the landscape component of the development.

Appendix D (Section 3) "Indicative Bin Sizes" provides Council's standard bin sizes

Ongoing Management of Residential Development

C25 For single dwellings, each dwelling shall have their own bins with individual householders taking responsibility for on-street placement and removal.

C26 For multiple residences, agents of the owners' corporation are to ensure that waste is transported to the collection areas at appropriate times on collection days. Arrangements must be in place in regards to the management, maintenance and cleaning of all waste/recycling management facilities.

Note: Bins are to remain in their on-site storage area at all times other than for their placement at the collection point on the nominated collection day and then returned to their storage area within 12 hours of collection.

D2.4 NON-RESIDENTIAL DEVELOPMENT

Controls

- C1 Typical waste generation rates for various non-residential uses are provided in Appendix D (Section 2) “Waste Generation Rates”. These rates should be considered in the design of all developments.
- C2 Waste and recycling storage and collection areas and/or rooms are to be provided that:
- ensure that the system for waste management is compatible with the collection service;
 - provide for the onsite separation of reusable and recyclable materials;
 - provide for appropriate signage;
 - are suitably enclosed, covered and maintained;
 - ensure an acceptable method for the transportation of waste from each level or tenancy to the waste and recycling storage and collection areas;
 - provide for an appropriately designed and well located waste storage and recycling area and/or room with suitable manoeuvrability; and
 - provide for clear access for staff and collection services.

Further details can be found in Appendix D (Section 6) “Non Residential Development Waste and Recycling Storage Areas”.

- C3 Where these waste and recycling storage and collection areas are not internally located, they should be located behind the main building alignment and appropriately screened to minimise visual impacts on the development and streetscape.
- C4 Communal waste and recycling areas shall be provided in the following circumstances:
- for multiple occupancy tenancies; or
 - where design and/or site characteristics make it impractical for all tenancies to have separate collection points.
- C5 Each tenancy within the building or complex shall have a designated and clearly defined space within a communal waste and recycling area, if provided. Each designated space shall provide sufficient commercial containers to accommodate the quantity of waste and recyclable material generated.

Appendix D (Section 7) “Example of a Waste and Recycling Storage Rooms” provides further details.

- C6 Where collection vehicles must enter private property, design should be carried out in accordance with the requirements specified in Appendix D (Section 8) “Vehicle Access and Turning Circles” and the *Australian Standard 2890.2 Parking Facilities* as amended.

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- C7 Details are to be provided of compliance with any environmental health and safety requirements relating to on site storage and removal of waste materials such as refrigerated waste rooms, grease traps and the like.
- C8 Waste disposal and recycling areas should be flexible in design allowing for future changes of use or tenancy.
- C9 An internal waste/ recycling cupboard must be provided for every kitchen area in a development which is of a sufficient size to hold at a minimum a single day's recyclable, compostable and waste material.
- C10 Consideration should be given to the provision of composting areas and/or organics recycling on-site. Composting equipment may also be considered providing that it's usage meets any state and federal legislative requirements.

~~C11 The use of volume reduction equipment may be appropriate where space is limited.~~

~~There will be no allowable reduction in the area required for the rooms, where such equipment is proposed, as these rooms should allow for future changes to onsite management arrangements.~~

C11 The use of waste and recycling compaction equipment is prohibited.

- C12 In sink waste disposal systems ~~and garbage chutes~~ are strongly discouraged.

Ongoing Management of Non-Residential Development

- C13 For all developments, details must be provided in the Site Waste Minimisation and Management Plan which indicate the ongoing management of waste on site, such as lease conditions, caretaker on site and the like.
- C14 Non-residential developments with multiple tenancies shall provide an acceptable method for the transportation of waste and recycling from each level or unit to a waste and recycling storage area. This should provide direct and convenient internal access which is available to all levels and tenants such as a goods lift or by a caretaker.

In these circumstances, space must be provided per floor for the temporary storage of waste and recyclables.
- C15 All commercial tenants must keep written evidence on site of a valid contract with a licensed waste contractor for the regular collection and disposal of the waste and recyclables that are generated on site.
- C16 Consideration should be given to the following:
 - a. where separation of glass is undertaken it should be carried out within the premises during the hours 8am to 5pm to ensure minimal noise impacts on surrounding properties;
 - b. production of hazardous waste requires particular attention and should be checked with the Council and NSW Department of Environment and Heritage; and
 - c. premises which generate at least 50 litres per day of meat, seafood or poultry waste must have that waste collected on a daily basis or must store that waste in a dedicated and refrigerated waste storage area until collection.

- C17 Grease traps must be provided, where appropriate in accordance with Sydney Water's Trade Waste Pre-treatment Guidelines. Where possible, grease traps must be installed outside the building or in a dedicated grease trap room. Grease traps must not be accessed through food handling and storage areas.

Note: A Trade Waste Agreement shall be obtained from Sydney Water prior to the discharge of trade wastewater to the sewerage system.

D2.5 MIXED USE DEVELOPMENT

Controls

- C1 Mixed use development must incorporate separate and self-contained waste management systems for the residential and non-residential components.
- C2 The residential waste management system must be designed in accordance with the controls related to residential development and the non-residential waste management system must be designed in accordance with the controls for non-residential development.

An example of a waste and recycling storage room is provided in Appendix D (Part 7) "Example of a Waste and Recycling Storage Room(s)".

APPENDIX D: SITE WASTE MINIMISATION AND MANAGEMENT PLAN TEMPLATE

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SECTION 1 – SITE WASTE MINIMISATION AND MANAGEMENT PLAN TEMPLATE

1.1 APPLICANT AND PROJECT DETAILS

Applicant and Project Details (All Developments)	
Applicant Details	
Application No.	
Name	
Address	
Phone number(s)	
Email	
Project Details	
Address of development	
Existing buildings and other structures currently on the site	
Description of proposed development	
<p><i>This development achieves the waste objectives set out in this Development Control Plan. The details on this form are the provisions and intentions for minimising waste relating to this project. All records demonstrating lawful disposal of waste will be retained and kept readily accessible for inspection by regulatory authorities such as council, relevant NSW State waste and health and safety authorities.</i></p>	
Name	
Signature	
Date	

1.2 DEMOLITION (ALL TYPES OF DEVELOPMENTS)

Address of development: _____

	Reuse	Recycling	Disposal	
Type of waste generated	Estimate Volume (m ³)	Estimate Volume (m ³)	Estimate Volume (m ³)	Specify method of on site reuse, contractor and recycling outlet and /or waste disposal facility to be used
Excavation material				
Timber (specify)				
Concrete				
Bricks/pavers				
Tiles				
Metal (specify)				
Glass				
Furniture				
Fixtures and fittings				
Floor coverings				
Packaging (used pallets, pallet wrap)				
Garden organics				
Containers (cans, plastic, glass)				
Paper/cardboard				
Residual waste				
Hazardous/special waste e.g. asbestos (specify)				

Other (specify)				
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1.3 CONSTRUCTION (ALL TYPES OF DEVELOPMENTS)

Amounts provided below should be for excess or leftover construction waste material.

Address of development: _____

Construction Waste 'Rule of Thumb' for renovations and small home building:

- Timber 5-7% of material ordered
- Plasterboard 5-20% of material ordered
- Concrete 3-5% of material ordered
- Bricks 5-10% of material ordered
- Tiles 2-5% of material ordered

Source: *Waste Planning Guide for Development Application, Inner Sydney Waste Board, 1998*

WASTE MINIMISATION AND MANAGEMENT PLAN TEMPLATE

Type of Waste	Reuse	Recycling	Disposal	Onsite reuse
Type of waste generated	Estimate Volume (m ³)	Estimate Volume (m ³)	Estimate Volume (m ³)	Specify method of onsite reuse, contractor and recycling outlet and/or waste disposal facility to be used
Excavation material				
Timber (specify)				
Concrete				
Bricks				
Tiles				
Metal (specify)				
Glass				
Plasterboard (offcuts)				
Fixtures and fittings				
Floor coverings				
Packaging (used pallets, pallet wrap)				
Garden organics				
Containers (cans, plastic, glass)				
Paper/cardboard				
Residual waste				
Hazardous/special waste (specify)				

1.4 ONGOING OPERATION (ALL TYPES OF DEVELOPMENT)

Address of development: _____

Show the total volume of waste and recyclables expected to be generated by the development and the associated waste and recycling storage requirements.

Please note that if the development is for a mixed use, that is, contains components of both residential and non-residential development, separate plans regarding the “ongoing operation” may need to be completed.

WASTE MINIMISATION AND MANAGEMENT PLAN TEMPLATE

	Recyclables		Compostable	Residual waste*	Other
	Paper/ cardboard	Metals/ plastics/ glass			
Amount generated (L per unit per day)					
Amount generated (L per development per week)					
Any reduction due to compacting equipment					
Frequency of collections (per week)					
Number and size of storage bins required					
Floor area required for storage bins (m ²)					
Floor area required for manoeuvrability (m ²)					
Height required for manoeuvrability (m)					

**Current "non-recyclables" waste generation rates typically include food waste that might be further separated for composting.*

1.5 “INDICATIVE BIN SIZES” PROVIDES COUNCIL’S STANDARD BIN SIZES

Construction Design (All Types of Developments)
Outline how measures for waste avoidance have been incorporated into the design, material purchasing and construction techniques of the development:
Detail the arrangements that would be appropriate for the ongoing use of waste facilities as provided in the development. Identify each stage of waste transfer between residents' units/commercial tenancies and loading into the collection vehicle, detailing the responsibility for and location and frequency of, transfer and collection. <i>(Please refer to other Appendices within this Chapter for further information)</i>

SECTION 2 – PLANS AND DRAWINGS

(This section to be completed for all developments other than single dwellings, dual occupancies and secondary dwellings).

The following checklists are designed to help ensure SWMMPs are accompanied by sufficient information to allow assessment of the application.

Drawings are to be submitted to scale, clearly indicating the location of and provisions for the storage and collection of waste and recyclables during:

- demolition
- construction, and
- ongoing operation.

2.1 DEMOLITION

Ensure the site plans indicate:

	Tick Yes
Size and location(s) of waste storage area(s)	
Access for waste collection vehicles	
Areas to be excavated	
Types and numbers of storage bins likely to be required	
Signage required to facilitate correct use of storage facilities	

2.2 CONSTRUCTION

Ensure the site plans indicate:

	Tick Yes
Size and location(s) of waste storage area(s)	
Access for waste collection vehicles	
Areas to be excavated	
Types and numbers of storage bins likely to be required	
Signage required to facilitate correct use of storage facilities	

2.3 ONGOING OPERATION

Ensure the site plans indicate:

	Tick Yes
Space	
Size and location(s) of waste and recycling storage areas	
Recycling bins placed next to residual waste bins	
Space provided for access to and the manoeuvring of bins/equipment	
Any additional facilities	
Access	
Access route(s) to deposit waste in storage room/area	
Access route(s) to collect waste from storage room/area	
Bin carting grade	
Location of final collection point	
Clearance, geometric design and strength of internal access driveways and roads	
Direction of traffic flow for internal access driveways and roads	
Amenity	
Aesthetic design of waste storage areas	
Signage – type and location	
Construction details of storage rooms/areas (including floor, walls, doors, ceiling design, sewer connection, lighting, ventilation, security, wash down provisions etc)	

2.4 WASTE AND RECYCLING GENERATION RATES

Ongoing Operation

WASTE MINIMISATION AND MANAGEMENT PLAN TEMPLATE

Premises type	Waste generation	Recyclable material generation
Backpackers' accommodation	40L/occupant space/week	20L/occupant space/week
Boarding house, guest house	60L/occupant space/week	20L/occupant space/week
Butcher	80L 185L/100 sqm floor area/day	Variable 100L/100 sqm floor area/day
Delicatessen	80L/100 sqm floor area/day	Variable 50L/100 sqm floor area/day
Fish shop	80L 250L/100 sqm floor area/day	85L/100 sqm floor area/day Variable
Greengrocer	240L 310L/100 sqm floor area/day	120L/100 sqm floor area/day
Restaurant or cafe	40L/1.5 400L/100 sqm floor area/day	2L/1.5 280L/100sqm floor area/day
<u>Café</u>	<u>215L/100 sqm floor area/day</u>	<u>300L/100 sqm floor area/day</u>
Supermarket	240L/100 sqm floor area/day	240L 300L/100 sqm floor area/day
Takeaway food shop	80L 175L/100 sqm floor area/day	Variable 60L/100 sqm floor area/day
Hairdresser, beauty salon	60L 40L/100 sqm floor area/week	40L/100 sqm floor area/day Variable
Hotel or motel accommodation, Licensed club	5L/bed space/day 50L/100 sqm bar area/day 10L/1.5 sqm dining area/day 20L/100 sqm floor area/day	1L/bed space/day 50L/100 sqm bar area/day 50L/100 sqm dining area/day 30L/100 sqm floor area/day
<u>Hotels, bars, clubs</u>	<u>90L/100 sqm floor area/day</u>	<u>80L/100 sqm floor area/day</u>
Child care centre	250L/100 sqm floor area/day	120L/100 sqm floor area/day
Offices	40L 20L/100 sqm floor area/day	40L 30L/100 sqm floor area/day
Shop less than 100 sqm floor area Shop greater than 100 sqm floor area <u>Retail (non-food)</u>	50L/100 sqm floor area/day 50L/100 sqm floor area/day	25L/100 sqm floor area/day 50L/100 sqm floor area/day

WASTE MINIMISATION AND MANAGEMENT PLAN TEMPLATE

Showroom	40L <u>25L</u> /100 sqm floor area/day	40L <u>25L</u> /100 sqm floor area/day
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Sources: Adapted from ~~Waverley Council Code for the Storage and Handling of Waste~~ and City of Melbourne, Appendix A, ~~Better Practice Guide For Waste Management In Multi-Unit Dwellings 2007~~

SECTION 3 – INDICATIVE BIN SIZES

Bin type	Dwelling Type	Height	Depth	Width	Footprint – m ² /bin
80 Litre Bin	Single dwelling	825mm	496mm	452mm (wheel to wheel)	0.22 sqm
*120 Litre Bin	Single dwelling or Multi dwelling housing	930mm	545mm	480mm (wheel to wheel)	0.26 sqm
**240 Litre Bin	Single dwelling or Multi dwelling housing or Residential component of Mixed Use Development	1060mm	730mm	585mm	0.43 sqm
 ***660 Litre Bin	Multi dwelling housing or residential component of mixed use development	1250mm	850mm	1370mm	1.16 sqm
 55 Litre Bin	Single dwelling	540mm			Diameter 410mm
Non-Residential Use					
 660Litre skip bin For use in developments that use a commercial waste collection provider.		1250mm	850mm	1370mm	1.16 sqm

* 120L recycling bins are the same dimensions

WASTE MINIMISATION AND MANAGEMENT PLAN TEMPLATE

** 240L recycling and garden bins are the same dimensions

[***660L recycling bins are the same dimensions](#)

SECTION 4 – WASTE/RECYCLING STORAGE ROOMS IN MULTI DWELLING HOUSING / RESIDENTIAL FLAT BUILDINGS

Building Code of Australia

Waste/recycling storage rooms must be constructed in accordance with the requirements of the *Building Code of Australia (BCA)*.

Location and Appearance

Waste/recycling storage rooms must be integrated into the design of the overall development. It is preferable that such rooms be located behind the front building line. Wherever possible, and for all buildings with 20 dwellings or more or where required by Council, the room should be in a basement location within the main building envelope (rather than a separate stand-alone structure). Materials and finishes visible from outside should be similar in style and quality to the external materials used in the rest of the development.

Waste/recycling storage rooms must be located and designed in a manner that reduces adverse impacts upon the inhabitants of any dwellings on the site and upon neighbouring properties. The location and design of the room should minimise adverse impacts associated with:

- the proximity of the room to any dwellings;
- the visibility of the room;
- noise generated by any equipment located within the room;
- noise generated by the movement of bins into and out of the room;
- noise generated by collection vehicles accessing the site; and
- odours emanating from the room.

Size

Waste/recycling storage rooms must be of adequate size to comfortably access, accommodate, manoeuvre, empty and transfer all waste and recycling bins associated with the development.

Layout

The gradient of waste/recycling storage room floors and the gradient of any associated access ramps must be sufficiently level so that access for the purpose of emptying bins can occur in accordance with the NSW Government's Work Health and Safety requirements.

Within waste/recycling storage rooms, bins used for the storage of recyclable materials should be kept separate from (but close to) general waste bins with signage indicating the relevant recyclable waste type— so that the potential for contamination of recyclable materials is minimised.

SECTION 5 – GARBAGE TRUCK DIMENSIONS FOR RESIDENTIAL RESOURCE RECOVERY/WASTE COLLECTION

This page includes information regarding the dimensions of garbage trucks that are typically used for the collection of residential waste. Developments that require Council garbage trucks to enter the site for the collection of residential recycling and waste must be designed to accommodate on-site truck movement.

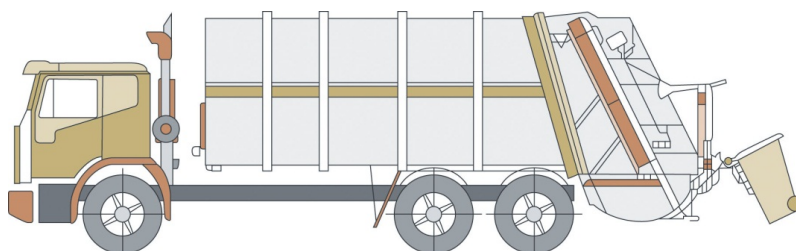
Please note that the size of Council's garbage truck may change over time

Requirements regarding vehicle turning circles and driveway width/gradient are contained in *Australian Standard 2890.2 2002/Parking Facilities — off street commercial vehicles*.

See Section D8: “Vehicle Access and Turning Circles” for further information

It is recommended that an applicant speak with Council in regards to the design of development proposals that involve garbage trucks entering the site. Services will not be provided where there are undue risks.

Typical Council Garbage Truck used for Domestic Waste Collection	
Length overall	9.35 metres
Width overall	2.56 metres
Operational height	4.35 metres
Travel height	4.35 metres
Weight (vehicle and load)	263 tonnes
Weight (vehicle-only)	13 tonnes
Turning Circle	256.0 metres



rearloader garbage truck

Example of a Council garbage truck

Source of diagram: *Better Practice Guide for Waste Management in Multi-dwelling housing*, DECC 2008.

SECTION 6 – NON RESIDENTIAL DEVELOPMENT WASTE AND RECYCLING STORAGE AREAS

Building Code of Australia

Waste/recycling storage areas must be constructed in accordance with the requirements of the *Building Code of Australia (BCA)*.

6.1 LOCATION AND APPEARANCE

Waste/recycling storage areas must be integrated into the design of the overall development. Materials and finishes that are visible from outside should be similar in style and quality to the external materials used in the rest of the development.

Waste storage areas for non residential development need to be separate from the residential development component.

Waste/recycling storage areas must be located and designed in a manner that reduces adverse impacts upon neighbouring properties and the streetscape. The location and design of the areas should minimise adverse impacts associated with:

- the proximity of the area to dwellings;
- the visibility of the area;
- noise generated by any equipment located within the area;
- noise generated by the movement of bins into and out of the area;
- noise generated by collection vehicles accessing the site; and
- odours emanating from the area.

6.2 SIZE

Waste/recycling storage areas must be of adequate size to comfortably accommodate all waste and recycling bins associated with the development.

Waste/recycling storage areas must be able to accommodate separate general waste bins and recycling bins which are of sufficient volume to contain the quantity of waste generated between collections.

6.3 LAYOUT

The gradient of waste/recycling storage area floors and the gradient of any associated access ramps must be sufficiently level so that access for the purpose of emptying bins can occur in accordance with WorkCover NSW Work Health and Safety requirements.

Within waste/recycling storage areas, bins used for the storage of recyclable materials should be kept separate from (but close to) general waste bins— so that the potential for contamination of recyclable materials is minimised.

6.4 ACCESS: WASTE/RECYCLING COLLECTION

The development must be designed to allow access by collection vehicles used by the nominated waste contractor. Wherever possible, the site must be configured to allow collection vehicles to enter and exit the site in a forward direction and ensure collection vehicles do not impede general access to, from and within the site. Access driveways to be used by collection vehicles must be of sufficient strength to support such vehicles.

Servicing arrangements for the emptying of bins must be compatible with the operation of any other loading/unloading facilities on-site.

Access for the purpose of emptying waste/recycling storage bins must be able to occur in accordance with NSW Government Work Health and Safety requirements.

6.5 ACCESS: GENERAL

In commercial development, public buildings and industrial development, there must be convenient access from each tenancy to the waste/recycling storage area(s). There must be step-free access between the point at which bins are collected/emptied and the waste/recycling storage area(s).

Arrangements must be in place so that the waste/recycling storage area is not generally accessible to the general public.

Vermin must be prevented from entering the waste/recycling storage area.

6.6 SURFACES

Waste/recycling storage areas must have a smooth, durable floor and must be enclosed with durable walls/fences that extend to the height of any containers which are kept within.

6.7 DOORS/GATES

Doors/gates to waste/recycling storage areas must be durable. There must be a sign adjacent to the door/gate that indicates that the door/gate is to remain closed when not in use. All doors/gates are to be openable from both inside and outside the storage area and must be wide enough to allow for the easy passage of waste/recycling bins.

6.8 SERVICES

Waste/recycling storage areas must be serviced by hot and cold water provided through a centralised mixing valve. The hose cock must be protected from the waste bins and must be located in a position that is easily accessible when the area is filled with waste bins.

The floor must be graded so that any water is directed to an approved sewer connection located upon the site.

6.9 SIGNAGE

Waste/recycling storage areas must include signage that clearly describes the types of materials that can be deposited into recycling bins and general garbage bins.

6.10 MANAGEMENT

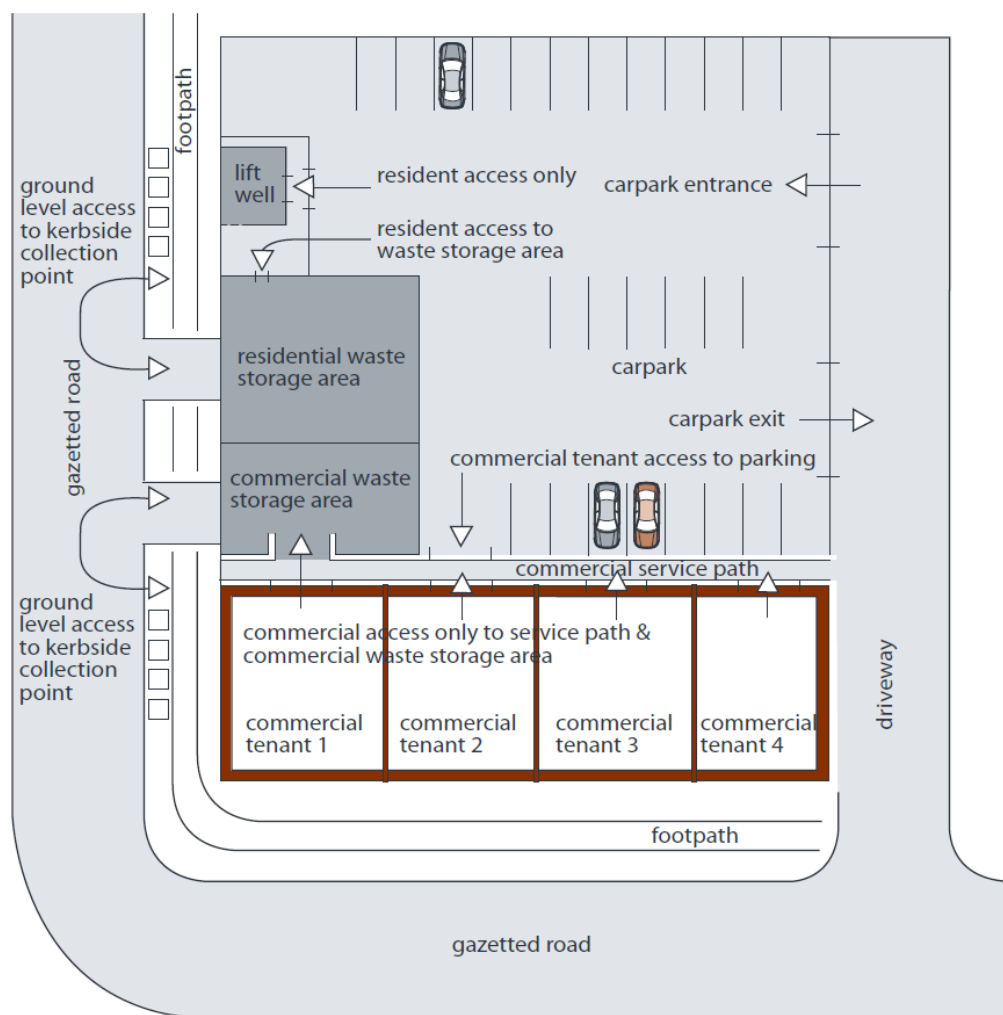
Arrangements must be in place for the regular maintenance and cleaning of waste/recycling storage areas. Waste/recycling bins must only be washed in an area which drains to an approved sewer connection.

The *Better Practice Guide for Waste Management in Multi-dwelling housing* gives detailed information about waste recycling/storage rooms and facilities. It can be used as a guide in conjunction with the controls in this Development Control Plan. The Guide was substantially reviewed in 2007 and is available on the NSW Office of Environment and Heritage website (www.environment.nsw.gov.au). Further updates will be published as further information from social research and waste stream audits becomes available.

SECTION 7 – EXAMPLE OF A WASTE AND RECYCLING STORAGE ROOM(S)

The following figure provides an example of the location of bin storage areas for possible mixed use developments. This diagram highlights separate storage rooms for residential and commercial use.

This example is a guide only and other arrangements could be suitable.



Source: Mixed Use Development – Better Practice Guide for Waste Management in Multi-dwelling housing, Department of Environment and Climate Change NSW

SECTION 8 – VEHICLE ACCESS AND TURNING CIRCLES

General

Appropriate heavy vehicle standards should be incorporated into the development design including those specified in Acts, regulations, guidelines, and codes administered by Austroads, Standards Australia, NSW Roads and Maritime Services, NSW WorkCover and any local traffic requirements.

Designers are encouraged to consult with Council and other relevant authorities prior to the design of roads and access points to ascertain specific requirements for the proposed development.

Road and driveway construction and geometry

Roads and driveways must be designed and constructed in accordance with the relevant authority requirements to allow the safe passage of a laden collection vehicle in all seasons.

Factors to be considered in design include:

- gradients for turning heads;
- longitudinal road gradients;
- horizontal alignments;
- vertical curves;
- cross-falls;
- carriageway width;
- verges;
- pavement widths;
- turning areas (see below);
- local area traffic management requirements (for example speed humps);
- sight distance requirements;
- clearance heights (for example a vertical clearance of 6.5m is required to load front-lift vehicles);
- manoeuvring clearance; and
- road strength (industrial-type strength pavement required, designed for a maximum wheel loading of seven tonnes per axle to accommodate garbage and recycling collection vehicles).

Collection from basements

Collection vehicles that are required to enter building basements to collect waste and/or recyclables are to comply with the following requirements:

- compliance with Australian Standard AS 2890.2 Parking Facilities: Off-Street Commercial Vehicle Facilities. This Standard provides detailed information regarding turning circles for a garbage truck. This Standard is available from SAI Global www.saiglobal.com;

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- the height to the structural members and upper floor ceiling should allow for a typical collection vehicle travel height/operational height consistent with the type of vehicle employed;
- adequate provision of space clear of structural members or vehicle parking spaces to allow a typical three-point turn of collection vehicles; and
- the basement floor should be of industrial-type strength pavement and designed for a maximum wheel loading of seven tonnes per axle to accommodate garbage and recycling collection vehicles.

See also Section D5: "Garbage Truck Dimensions for Residential Resource Recovery/Waste Collection"

SECTION 9 – WASTE CHUTES

Waste chute room design

Waste chute rooms are to be designed in accordance with the following:

- In buildings containing a waste chute system, at least one dedicated service room must be provided on each floor of the building, containing a chute service opening (for depositing waste into the main chute) and bins for the storage of recyclable materials.
- Chute rooms must be designed with sufficient capacity for the storage of two days quantity of recyclables for all dwellings on that level, based on rates in Part D, 2.3, C20 and C21.
- Chute rooms must be located for convenient access by users and be near the lift to enable transfer of bins without moving along corridors that access building occupancies.
- Chute rooms must be well ventilated and well lit.
- The floors, walls and ceilings of chute rooms must be finished with smooth, durable, light coloured materials (with coved intersection between wall/floor), which are capable of being easily cleaned.
- Chute rooms must include signage, displayed near the chute opening and recycling bins, which clearly describes the types of materials which can be deposited into the waste chute and the types of materials which can be deposited into recycling bins.

Waste chute design

Waste chutes must be designed in accordance with the following:

- The charging device for each waste chute service opening must be self closing and must not project into the main waste chute.
- Branches connecting service openings to the main waste chute must be no more than 1 metre long.
- Waste chutes must be located and insulated to reduce noise impact upon dwellings.
- Waste chutes, service openings and charging devices must be constructed of material (such as metal) which is smooth, durable, impervious, non-corrosive and fire resistant.
- Waste chutes, service openings and charging devices must be capable of being easily cleaned.
- Waste chutes must be cylindrical and should have a diameter of at least 500mm.
- There must not be any bends (or sections of reduced diameter) in the main shaft of the waste chute.
- Internal overlaps in the waste chute must follow the direction of waste flow.
- Waste chutes must deposit rubbish directly into a bin located within a recycling/waste storage room.
- A cut-off device must be located at or near the base of the waste chute so that the bottom of the waste chute can be closed when the bin at the bottom of the waste chute is withdrawn or being replaced.
- The main waste chute must be adequately ventilated.

- Chutes are for the disposal of general waste only, recycling chutes are not permitted.
- Use of mechanical diverters to separate various types of waste within a single chute are not permitted.

Management

- Recycling bins must be transferred daily by a building caretaker to the main recycling/waste storage room.
- Arrangements must be in place for the regular maintenance and cleaning of service rooms, waste chutes, chute service openings and charging devices.

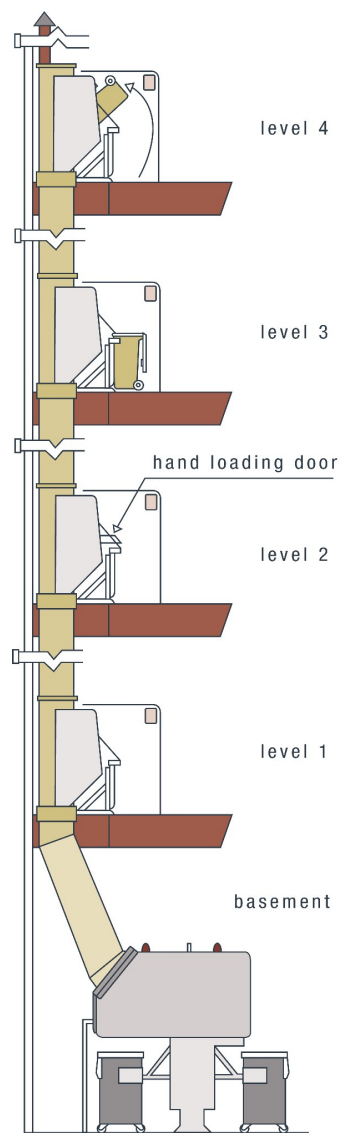


Figure 2: Example of a garbage chute system.

Source of diagram: Better Practice Guide for Waste Management in Multi-Unit Dwellings, Resource NSW, February 2002.