



**Opal Health Care – St Clair, NSW.**

**Proposed**

**Waste Management Plan Operational Brief – DA Issue**



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## DOCUMENT CONTROL & DISTRIBUTION SHEET

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*It should be noted by the Reader that the calculation of waste volumes detailed are not precise as the frequency of waste is subject to the following: demographic, religious, cultural, and racial differences. Seasonal periods and events may also impact on waste generation rates. However, for the purposes of the exercise, industry standards and Council rates have been utilised as they include nominal allowances for normal daily problems encountered in aged care.*

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## The Definitions

Acronyms	Description
NCC	National Construction Code of Australia.
DA	Development Application
DCP	Development Control Plan.
CLIENT	Opal Health Care.
EPA	NSW Environmental Protection Authority.
Penrith City Council	Local Council.
WMP	A document that details the type and quantity of garbage and recyclable material that is likely to be generated during the construction, demolition, and ongoing operation of a development. It also details where and how the garbage and recycling should be stored, how it will be reprocessed or disposed of and handling procedures.
MGB	A waste container generally constructed of plastic with wheels with a capacity in litres of 120, 240, 360, 660, 1,100.
WH+S	Work Health and Safety.
Bund or banded pallet	To be enclosed by a low wall or enclosed pallet system intended to contain any liquid spillage or inundation from extending beyond an area.
Clean-up service	A booked, weekly collection service for large and bulky items such as furniture, whitegoods, or garden waste offered by the Council to residents.
Electronic waste or e-waste	Unwanted or broken electronic goods that can be recycled, including TVs, computers, and peripherals, electric appliances, mobile phones, VCRs, stereos, photocopiers, and fax machines.
Waste and recycling storage area	A dedicated space (including a bin room or bin bay) for the storage of waste, recycling, food and/or garden. organics bins, and bulky waste, problem waste and textile waste that is convenient for residents and occupiers to access and use.

## 1. Introduction

Opal Heath Care is looking to develop a new aged care facility home located at 94-100 Explorers Way, St Clair. The new Home will cater for upwards of **148 aged care residents when full**.

This waste management plan is an **operational plan** that will address the operational requirements of the Home and includes spatial comments for the waste area(s).

The purpose of this plan is to outline specific measures to attain the following outcomes:

- Comply with all relevant Local (Penrith City Council) Council Authority and State codes, legislative requirements and policies that will apply to this development.
- Compliant disposal and treatment of generated waste as detailed by Local (Penrith City Council) Council Authority.
- Options and processes to minimise the quantities of wastes generated ending up as land fill.
- Waste material handling processes required for the safe and compliant movement of recyclable and general waste from the RACF waste management area.
- Support the principles of Ecologically Sustainable Development.
- Adhere to the Penrith City Council Authority commitment to reduce land fill.
- The waste management operation for this RACF Home will always operate in accordance with current Workplace and Safety standards in mind.
- Comply with the NSW Department of Environment and Climate Change - Better practice guide for Waste Management in Multi-unit dwellings (Waste generation Rates).

All waste calculations and figures provided by UFD are based on the proposed DA drawings prepared by Custance Architects, room numbers as provided by the Client and the NSW Department of Environment and Climate Change - Better practice guide for Waste Management in Multi-unit dwellings (Waste generation Rates).

Waste management facilities for this site are to be designed and constructed in accordance with current NCC requirements, Australian Standards and Statutory requirements.

**Note:** The management of medical waste (as used in aged care facilities) is a highly specialised field. If not stored and treated appropriately, some materials can cause infections or injuries, while others can be highly toxic. As such the correct and safe handling of generated waste will always be required.

**Note:** This Waste Management Plan **does not** provide comments or facilitate key requirements for a Construction waste management plan. A Construction waste management plan will need to be developed and employed by the Construction team.

## Return Briefing

### A. Background

A comprehensive waste management operation is crucial to the successful day to day operation of the Proposed Opal Health Care St Clair Home.

As such, the collection, compaction, sorting and dispatching of all waste emanating from the future development should be seen as a service which plays a **fundamental role in the functioning of the aged care facility that it supports.**

This Operational Waste plan shall provide specific details and requirements that the facilities waste management area will need to operate too.

### B. Objectives

The objective of this report is to provide a way forward through a series of recommendations regarding the proposed future methods of transportation, handling, storage, compaction, and periodic waste removal of the waste stream.

Recommendations are provided regarding the capacity and performance requirements of new waste management equipment and systems as well as the periodic removal of General, Administration, Medical, Cytotoxic, Contaminated fluids, and Co-mingled waste.

Comments regarding the reduction of landfill and potential waste reduction rates are outlined in this report.

### C. Methodologies

The review of the current waste management operations as well as the outlined recommendations as detailed in this report has been based on the following:

- Current Custance Architect drawings for the proposed new St Clair Home.

Additionally, the following Standards, Codes and Guidelines have been adhered to in the production of this report.

- AS1668.2-2012 – Mechanical ventilation.
- Current NCC requirements relating to waste management areas.
- AS4586-2013 – slip resistance ratings.
- Current Work Health and Safety Requirements.
- Penrith City Council Waste requirements.
- AS4123.7-2006 mobile waste containers.
- AS1680-1990 – Artificial lighting requirements for Storage areas.
- Australian Standard 1319:1994 Safety signs for the occupational environment.
- NSW Department of Environment and Climate Change (Better practice guide for Waste Management in Multi-unit dwellings).

**Note:** This waste management plan is not a Construction Waste Management Plan. A Construction Waste Management Plan will need to be developed.

#### **D. Landfill reduction targets and waste management opportunities to reduce waste volumes.**

As part of this development, consideration has been given to ways in which waste volumes can be reduced. The following systems have been employed in the waste management operation and foodservice operation:

1. Set all computers to print on both sides of the page – reducing paper consumption by 50%.
2. Reduce administrative paper consumption by using “Cloud based” storage solutions.
3. Reduce plastic bottle usage by providing filtered water in jugs to the Servery points and Lounge/dining areas.
4. Undertake regular audits of rubbish collected in cleaners’ bins noting what can be placed in recycled bins instead of general waste.
5. Employ recycling signage through the Homes Servery areas to promote a positive recycling message.
6. Limit the Homes use of single-use and disposable products and choose alternatives which can be used again.
7. When buying paper or cardboard products, Opal Heath Care will look out for items that contain a high percentage of Australian recycled fibre or are made with fibre content from sustainably managed sources, such as plantations or sustainably managed native forests. Australian paper manufacturers must meet environmental production standards which may not have to be met in other countries.

## 2. Waste management key requirements

### Key features

The new Opal Health Care St Clair Homes waste holding/management area is to be located on the Ground floor level of the Home – being located within easy access of the Homes loading dock for ease of access and waste removal.

A **private contracted (Veolia) waste collector** specialist shall remove collected general and Co-mingled waste, periodically (multiple times per week) as detailed in this report.

Medical and cytotoxic waste generated on site shall also be removed by the same private contracted (Veolia) waste collector specialist.

The waste management area will be managed by the Opal Health Care Onsite Maintenance Caretaker/Manager.

Opal Health Care team members will be required to maintain and manage all bin holding/collection areas on this site. Home maintenance Team members will also be required to maintain all bin movement, compaction, and equipment.

As part of the waste management operations the following points need to be applied:

### 2.1 Waste management area – Building fabric & waste services.

A dedicated waste holding area will be located on the Ground floor level of the St Clair development for the storage of all waste generated in the RACF.

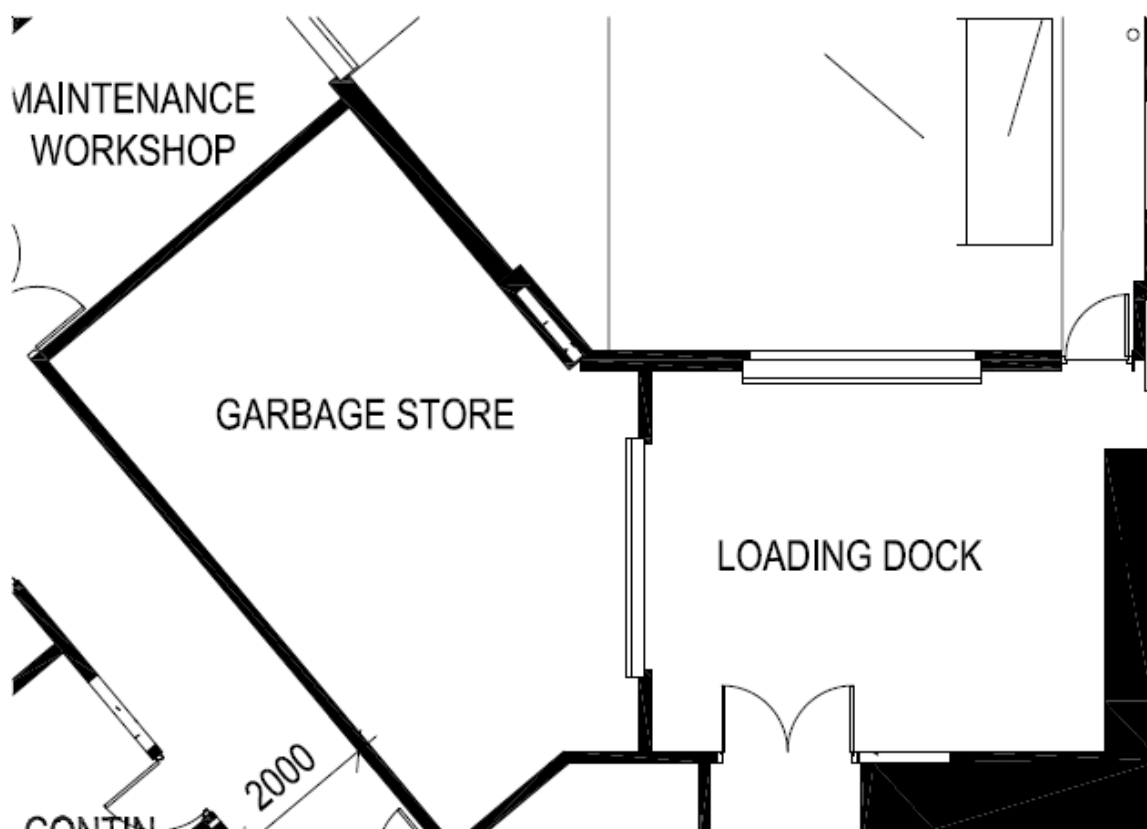


Figure 1 Proposed Waste Management Area and associated loading dock.



A **contracted (Veolia) waste collector** must collect all general and Co-mingled, Administration, Green, Medical and Cytotoxic waste generated on a regular basis. The waste management/holding area will be located on the Ground floor for the ease of removal of all waste by the waste collection agency. A waste collection/vehicle access pick up point will be provided at the loading dock area.

The St Clair waste holding area will be constructed and installed to comply with the National Construction Code of Australia and all relevant Australian and Local Standards. Waste generation rates are based on NSW Department of Environment and Climate Change (Better practice guide for Waste Management in Multi-unit dwellings).

Additionally, all the following items are to be incorporated into the Ground floor waste management area.

- The ceiling height of waste storage area shall be a **minimum of 2400 mm**.
- The doorway opening to the waste room shall be of adequate size to allow easy access to the noted bins in this report and permit the installation and maintenance of waste handling and compaction equipment (if required) that may be used in the garbage rooms.
- UFD recommends that the floor to each waste area be a **minimum of 75mm thick** and covered at the walls and graded to a centrally located floor drain. Flooring will be slip rated in accordance with current Australian Standards (AS4586).
- A centrally located approved drain point with accessible and Watermark approved removable bucket trap will be installed into the floor. This drain point will be connected to the sewer.
- All walls in the Waste Management areas will be painted in an epoxy-based paint that is **both washable and cleanable**. The walls of the waste room must be constructed of approved solid impervious material. The Waste room will be constructed to prevent the entry of vermin (rats, mice etc.).
- All internal walls of the waste areas will be fitted with protective bumper railings (or Opal Health Care approved equal). UFD recommends BR-200 Latham bump rail (**or Custance Architect detailed equal**) for these spaces.
- The waste management area will be complete with hot and cold-water hose cocks which will have fitted to them a proprietary hose reel assembly.
- The waste management area will be under surveillance to minimise vandalism.
- Lighting shall be provided in accordance with Australian Standards for LUX requirements in Waste Management areas.
- The section of driveway that will be used by the nominated Waste Collection Contractor will need to be designed in accordance with Australian Standard AS 2890.2 – 2002 Parking Facilities Part 2: Off-street commercial vehicle facilities for commercial waste collection vehicle details as outlined in this report.
- Vehicle access and turning circle requirements are detailed by the Transport Consultant in accordance with Australian Standards. Enough space shall be made available to assist the Clients Contracted waste collection vehicles to successfully move as required.
- Adequate vehicle access needs to be provided with the finished floor to ceiling height of the vehicle pathway being no less than the height of the general and recyclable water collection vehicle.

**Note:** Please refer to Section 5 of this report for the anticipated Waste Collection Vehicle size and details.

- The waste management operation for this Home will always operate in accordance with current Statutory Workplace and Safety Standards in mind.
- The waste collection and holding area of the St Clair Home will be designed into the building in such a manner as to not compromise the streetscape character.
- The Waste collection vehicle will attend site during normal business hours and outside shift change times to minimise noise and enhance pedestrian safety.
- Maintenance Staff shall Organise and coordinate both General Waste, Medical, Green. Administration, Cytotoxic and Co-mingled Waste pick-ups in a just in time manner with the Opal Health Care's Contracted waste collection agencies.
- Maintenance staff shall ensure that bin all movements from the waste management area to the waste collection area shall be done in accordance with current WH+S requirements.
- The Ground floor waste management area and loading dock will always be off limits to the Homes residents, and their guests.

## 2.2 Ventilation requirements

- The waste collection space will be constructed with a supply and exhaust air system, being constructed in accordance with AS1668.2-2012.
- The waste management room must be ventilated by A mechanical exhaust ventilation system exhausting at a rate of 5L/s.m<sup>2</sup> floor area, with a minimum rate of 100L/s min.

## 2.3 Insect control

A proprietary bug/insect zapper shall be installed in the waste collection room. A general-purpose outlet will be provided at high level (2,200mm AFFL) near the insect zapper's location. This will assist in controlling insects in the waste management area.

## 2.4 Access

**Note:** Please refer to the Transport/Access Consultant's traffic report on access and egress requirements for waste collection vehicles at this site.

**Note:** Vehicle access and vehicle movements shall be aligned with the NSW Department of Environment and Climate Change (Better practice guide for Waste Management in Multi-unit dwellings). Which details the following.

- The collection point must be designed to ensure that the waste collection vehicle can safely access and manoeuvre within the Home.
- The Waste collection vehicle must be able to enter and exit the home in a forward direction. The waste collection point is positioned to minimise manoeuvring within the site.
- The travel route shall suit the dimensions and turning capabilities of the proposed waste collection vehicle.

- Waste Collection Vehicle travel routes shall be adequately surfaced.
- The grades of entry must not exceed the capabilities of the waste collection vehicle.
- The waste collection vehicle will partially reverse into the Homes loading dock. Home staff will bring waste bins to the loading dock entrance for the waste collection agency to collect generated waste external to the Home.
- To facilitate the development of adequate, safe, and compliant waste storage and removal facilities. that meets the needs of the residents.

## 2.5 Waste bins standards

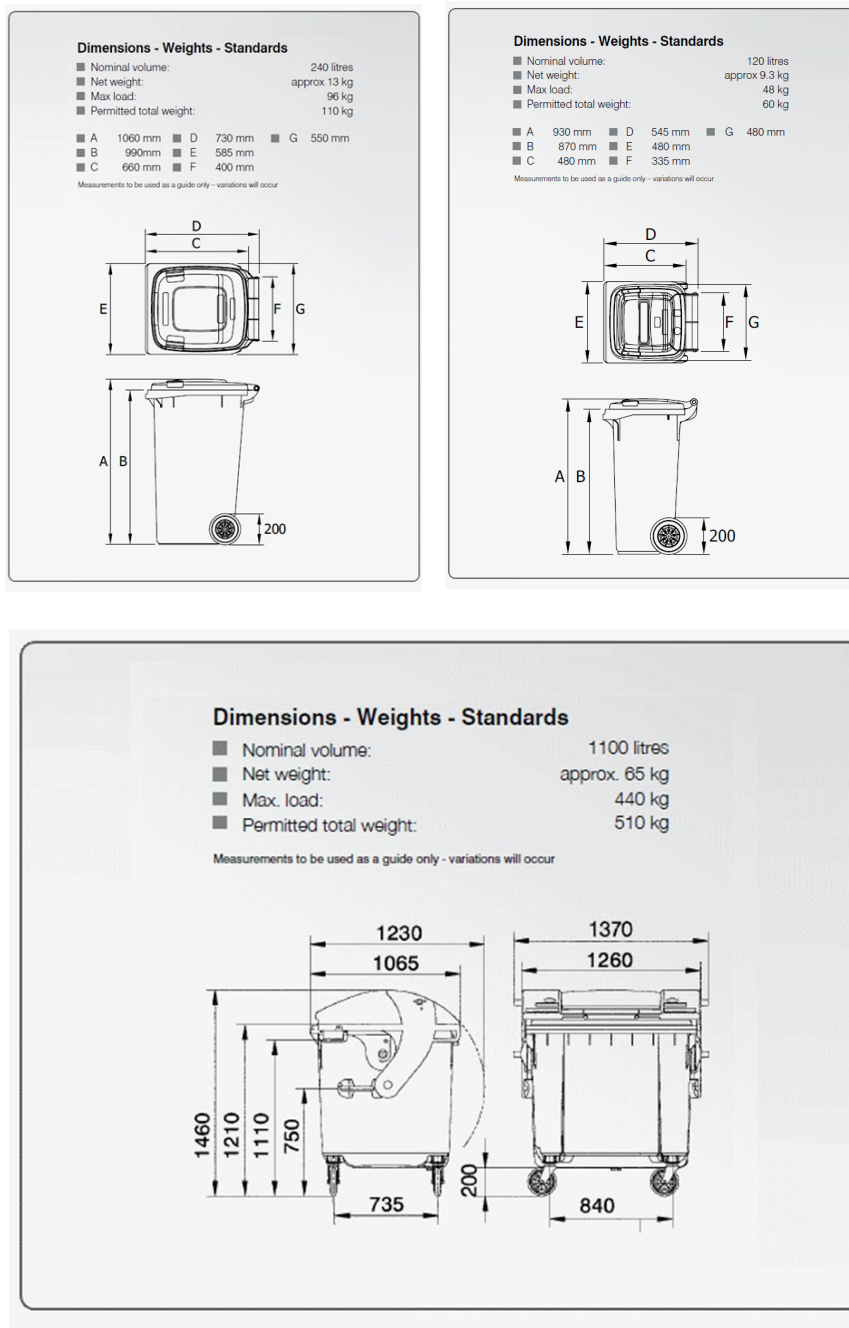
All waste bins used at this Home (including waste collection points through the building) are to be aligned with current Australian Standards regarding waste management.

An Australian Standard has recently been developed for mobile bin colours (AS4123.7-2006 mobile waste containers - Part 7: colours, markings, and designation requirements). The colour designations for common waste categories are listed in the table below.

Waste Category	Bin body colour	Bin lid colour
Garbage	Dark green or black	Red
Recycling (commingled or containers)	Dark green or black	Yellow
Paper / Cardboard	Dark green or black	Blue
Organics (including co-collected food and garden organics)	Dark green or black	Lime green

AS4123 consists of several sections covering critical areas of a MGBs design and functionality.

- Two (2) wheel containers with a capacity up to 400L for lifting devices' Dimensions and design.
- Four (4) wheel containers with a capacity from 500L to 1,200L with flat lid(s), for trunnion and/or lifting devices' Dimensions and design.
- Four (4) wheel containers with a capacity from 770L to 1,300L with dome lid(s), for trunnion and/or lifting devices' Dimensions and design.
- Four (4) wheel containers with a capacity from 750L to 1,700L with flat lid(s), for wide trunnion or BG and/or wide comb lifting devices' Dimensions and design.
- Performance requirements and test methods.
- Health, safety, and environment.
- Colors, markings, and designation requirements.



**Figure 2 Bin sizes to be employed.**

**Note:** To assist with WH+S requirements and staff placing waste into the 1,100 litre bins, UFD recommends the use of the 1,100 Litre Domed lid with the innovative “Lid Within a Lid” arrangement for the RACF waste management area. Please refer to Appendix B of this report for details.

Features of the 1,100 Litre Domed Lid with the innovative “Lid Within a Lid” system.

- Polymer components:
  - ❖ Injection moulded from specially designed HDPE Resistant to decay, frost, heat, and chemicals.
  - ❖ Special UV-stabilisers provide excellent ageing characteristics.
  - ❖ Corrosion resistant steel components
- Noise reduction:

- ❖ Quiet-running solid rubber tyres
- Long service life:
  - ❖ High quality materials
  - ❖ Excellent manufacturing processes
  - ❖ Withstands exposure to high mechanical stress levels.
- Recycling:
  - ❖ All container parts are Co-mingled.
  - ❖ Certified according to DIN EN840 and RAL GZ 951/1
  - ❖ Constant quality control through manufacturers laboratory as well as independent institutes.

Benefits of the 1100 Litre Domed Lid with the innovative “Lid Within a Lid” system.

- Easy to use for staff and residents alike with a smaller "lid within a lid" arrangement.
- In accordance with the safety requirements of EN 840-6 Special design prevents water ingress.
- Versatile, with a comprehensive accessories range
- Easy grip handles on all sides.
- Safe, easy handling, even with heavy loads.
- Wide lifting trunnions for improved safety during lifting, even with awkward loads.
- Various wheel assembly configurations for different applications.
- Water drain plug as standard.
- Compatible with identification and weighing systems.
- Easy to clean due to smooth surfaces and rounded.

Colours

- Standard colours: green, blue, and yellow.
- All additives are cadmium free and environmentally friendly.

### 3. Waste and recycling requirements

Universal Foodservice Designs, UFD has carried out an analysis of the waste and recycling requirements of the new Home and note the following calculations.

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Premises type	Suggested generation (litres per unit per day)		Comments
	Waste	Paper, cardboard and commingled materials	
Accommodation: non-hotel/motel	10	5	Based on the number of guest rooms with other types of facilities calculated separately. Note: function rooms are based on potential bookings and restaurant data.
Aged care	5	1	Per resident. Kitchen to be calculated as per restaurant. Need to determine if other services are offered. Note that other waste such as clinical waste will be generated.
Cafes	100	120	Based on per 100 m <sup>2</sup> floor space.
Carparks (commercial)	1	1	Based on per 100 m <sup>2</sup> floor space.

#### 3.1 Waste bin numbers

The following bin numbers will be required for this project.

Bin type	Bin size/capacity	Bin numbers	Pickups – per week
General waste	1,100 litres	5	2 times
Co-mingled waste	1,100 litres	3	2 times
Medical waste	120 litres	2	As volume dictates
Cytotoxic waste	120 litres	2	As volume dictates
Secured paper waste	240 litres	1	As volume dictates
Green/Garden waste	660 litres	1	As volume dictates
Fluid waste	1265mm x 645mm bunded pallet	1	As volume dictates

The waste calculations to determine the noted bin numbers are as detailed below.

### 3.2 General waste

Based on this amount of General waste generated UFD recommends the following estimates be applied:

Area	General waste litres per day requirement	General waste litres per week requirement
148 Residents	740 litres per day.	5,180 litres per week.
Main kitchen	488 litres per day.	3,416 litres per week.
Hair Salon	20 litres per day.	140 litres per week.
Administration and area Office areas (Combined allowance)	48 litres per day.	336 litres per week.
Café	42 litres per day.	294 litres per week.
Gym	8 litres per day.	56 litres per week.
Multi-Purpose room	7 litres per day.	49 litres per week.
<b>GENERAL WASTE TOTALS</b>	<b>1, 353 LITRES PER DAY</b>	<b>9,471 LITRES PER WEEK.</b>

### 3.3 Co-mingled Waste Generation Rates (RACF Co-mingled, paper, and cardboard waste).

Based on this amount of Co-mingled waste generated UFD recommends the following estimates be applied:

Area	Co-mingled waste litres per day requirement	Co-mingled waste litres per week requirement
148 Residents	148 litres per day.	1,036 litres per week.
Main kitchen	341 litres per day.	2,387 litres per week.
Hair Salon	9 litres per day.	63 litres per week.
Office areas (Combined allowance)	72 litres per day.	505 litres per week.
Café	51 litres per day.	357 litres per week.
Gym	12 litres per day.	84 litres per week.
Multi-Purpose rooms (Combined allowance)	14 litres per day.	98 litres per week.
<b>CO-MINGLED WASTE TOTALS</b>	<b>647 LITRES PER DAY</b>	<b>4,529 LITRES PER WEEK</b>

### 3.4 Liquid waste storage requirements

UFD recommends a **bunded area** be provided in the waste collection area. This will assist in ensuring the waste liquids such as oil, fuels, cooking oils, paint, chemical's etc. do not enter the trade waste system.

UFD recommends an area of a **nominal 1.00 square meters (1,245mm x 645mm)** be allowed for bund pallet in the waste collection area for this purpose.



**Note:** No floor waste should be required for the banded pallet.

**Note:** To EC Pallets for detail - <https://www.materialshandling.com.au/products/polyethylene-low-profile-spill-control-pallets/>

### 3.5 Medical waste collection requirements

148 residents @ 1.3 litres of waste generated per week = 192.4 litres of Medical waste generated per week.

Based on this amount of waste generated UFD recommends the following:

1. Waste removal is carried out once per week (or as waste accumulation dictates).
2. Medical waste is held in two (2) x 120 litre bins.
3. A Specialist private contractor is engaged to remove the waste.
4. At the same time that the medical waste bins are removed from the Waste holding area, the waste collector will also go through the Home and collect all full 2 litre and 5 litres 'sharps' bins – exchanging them with empty bins.

**Note:** UFD recommends that two (2) colours coded (yellow) x 120 litre bins are maintained on site if waste cannot be collected due to uncontrollable circumstances.

It is recommended that the waste management system be monitored in the initial stages to ensure that enough bins have been provided to handle the waste generated. The bin numbers noted are estimates based on volumes estimated and the amount of times waste is collected during the typical weekly period.

### 3.6 Hazardous (Cytotoxic) wastes general comments and requirements.

#### Cytotoxic Waste Disposal

All cytotoxic waste containers should be sealed prior to collection by Veolia. Cytotoxic preparations must be transported in sealed designated containers and labelled as Cytotoxic waste. Personnel engaged in the routine handling and transport of cytotoxic waste should wear industrial workwear, polyvinyl chloride (PVC) industrial gloves and safety boots.

Cytotoxic waste should be segregated from other waste streams. At present incineration is the only acceptable method for treating cytotoxic waste.



150 residents @ 1.3 litres of Hazardous medical waste generated per week = 192.4 litres of Hazardous medical waste generated per week.

Based on this amount of waste generated UFD recommends the following:

1. Hazardous medical waste removal is carried out **once per week** (or as waste accumulation dictates).
2. Hazardous medical waste is held in **two (2) x 120 litre bins**.
3. A specialist private contractor is engaged to remove the waste.
4. At the same time the Cytotoxic waste bins are removed from the Waste holding area, Home Medical waste collectors will also go through the Home and collect all full 4 litre and 20 litres 'sharps' bins/pails – exchanging them with empty bins.

**Note:** All full Cytotoxic 4 litre and 20 litres 'sharps' bins/pails bins used in the St Clair Home will be in the following areas:

- Dirty Utility rooms
- Team Nurse Stations
- Doctors treatment room or treatment areas

**Note:** UFD recommends that that two (2) colour coded (purple) x 120 litre bins are always maintained on site if waste cannot be collected due to uncontrollable circumstances.

It is recommended that the waste management system be monitored in the initial stages to ensure that enough bins have been provided to handle the waste generated. The bin numbers noted are estimates based on volumes estimated and the amount of times waste is collected during the typical weekly period.

Certain medical and liquid wastes have properties that make them hazardous or potentially harmful to human health or the environment. Some liquid wastes can also be hazardous.

If not stored and treated appropriately, some hazardous materials can cause infections or injuries, while others can be highly toxic. As such the correct and safe handling of generated Hazardous waste will always be required.

### **3.7 Administration/Secured paper waste**

A single 240 litre Administration/Secured paper waste bin shall be in the Waste management area. This will be emptied once (1 time) per month or as waste volumes dictates.



**Figure 3 A Confidential waste management bin will be provided.**

### 3.8 Bin washing area

UFD recommends that adequate bin washing space is made available for the washing of 30, 60, 120, 240, 660 and/or 1,100 litre bins inside the waste management area. As such, cold and warm water hose cocks will be required in this area along with a waterproof general power outlet and proprietary hose reel assembly.

**Note:** The Waste Management area will be complete with a proprietary floor grate assembly complete with a removable bucket trap assembly which will also be connected to the grease arrestor to meet NSW Trade Waste requirements.

### 3.9 Site caretaker/manager - responsibilities

The size of the St Clair development will influence the responsibility for ongoing management and maintenance of all bins and associated waste management areas.

All waste bin and waste equipment movements in and around all the St Clair Home are always to be managed by the Home's maintenance staff.

RACF Residents **will not be allowed** to transfer waste to any waste holding areas.

Opal Health Care maintenance and cleaning staff duties include, but are not limited to, the following:

- Organising, maintaining, and cleaning the general and recycled waste the holding area (Frequency will be dependent upon waste generation rates and will be determined based upon the Home's operations).
- Organising and coordinating both General waste and Co-mingled Waste pick-ups in a just in time manner with the Opal Health Care's Contracted waste collection agency (**Veolia**). Maintenance staff shall ensure that bin movements from the waste management area to the waste collection area shall be done in accordance with current WH+S requirements.
- Cleaning staff shall be required to continually collect all generated waste from the following areas:
  - All Resident living areas (including bedrooms).
  - Administration areas.
  - Laundry and Foodservice areas.
  - All Back of House areas.
  - All Front of house Areas.
  - Administration areas.
  - Lounge areas and living spaces.
  - Hairdresser.

**Note:** The collection of all generated waste generated through the Home will be carried out on a regular basis, with all generated waste being removed from the noted areas and transferred to the BOH waste management area by staff.

**Note:** Different waste streams (as indicated in this report) will require different coloured bins. Maintenance and Cleaning staff shall be responsible for training residents and staff on the correct placement of generated waste into the correct bin type.

- Cleaning and exchanging (servicing) all bin's as required through all areas of the Home.
- Home staff will ensure that waste bins are not left un-attended in the loading of the Home.
- The maintenance staff will also be responsible for the following to minimise dispersion of site litter and prevention of stormwater pollution to avoid impact to the environment and local amenity.
- Promoting adequate waste disposal into all bins across all waste holding areas on site.
- Keep under surveillance the bin room and dock areas (whilst affording access to staff/contractors).
- Prevent overfilling of all waste bins; keep all bin lids closed and bungs leak-free.
- Act to prevent dumping or unauthorised use of waste areas or litter on site.
- Ensure waste collection contractor/s to clean-up any spillage that may occur when clearing bins.
- Manage the access of staff, tradespeople, and contracted agencies to the loading dock.
- Coordinate preventative maintenance requirements on all waste machinery and plant as detailed in this report.

#### **Monitoring Waste Collection:**

The collection of all waste streams will be subject to the following:

- Age and demographic of the Resident.
- Time of year.
- Religious and Cultural practices.
- Events participated through the year.

The Homes and Management will be required to monitor waste volumes and continually update waste management practices throughout the life cycle of the Building.

### **3.10 Collection of waste through the Home.**

UFD notes the following waste collection processes to be applied during the day-to-day operation of the Home.

#### **1. General waste.**

All general waste will be transferred manually by the Home's cleaning staff to the waste holding area on an as required basis. General waste shall be collected from the following areas:

- Dirty Utility areas.
- Upper floor Servery points.
- Resident living spaces.
- Resident activity spaces.
- Main kitchen.
- BOH areas including the laundry.
- Nursing stations.

As the Main kitchen is on the same floor as the waste holding area, a waste chute will not be employed.

## **2. Medical and Cytotoxic waste**

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All Medical and Cytotoxic waste shall be removed from installed locations and returned to the Ground floor waste holding area by Opal facility cleaning staff. This will occur on a regular basis as demands dictates. Medical and Cytotoxic waste shall be collected from the following areas:

- Dirty Utility areas.
- Nursing Stations.
- Medical rooms.

## **3. Secured Administration waste.**

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All secured Administration waste shall be collected on an as required basis by Opal facility cleaning staff. This waste stream will not be transferred to the waste area via the waste chute. Secured waste will be transferred manually to the waste holding area. Secured waste shall be collected from the following areas:

- Reception areas.
- Office administration areas.
- Nursing stations.

## **4. Co-mingled waste.**

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Co-mingled waste will be transferred manually by Opal facility cleaning staff to the waste holding area on an as required basis. Recyclable waste shall be collected from the following areas:

- Main kitchen
- All Servery operations.
- Nursing and Medical stations.
- Resident Activity spaces.
- Medical rooms.
- Dirty Utility rooms.

### **3.11 Penrith City Council landfill reduction processes**

Much of what we consider 'waste' can be avoided, reused, or recycled. Landfill capacity in the Penrith City Council is like all Council landfill areas across Australia is running out and waste sent to landfill represents resources lost forever. With an increasing population and an increase in consumerism, it is important to conserve resources whenever possible. The Penrith City Council has made steps to reduce landfill waste including (but not limited too).

#### The Management of E-waste

Electronic waste or e-waste is unwanted electronic or electrical equipment. E-waste should be kept out of landfill for several reasons:

- E-waste is one of the fastest growing components of the waste stream in the world, growing three (3) times faster than any other type of waste.
- Australia currently sends 90% of e-waste to landfill e-waste contains valuable metals such as copper, aluminium, gold, silver, and tin, all of which are recyclable e-waste also contains materials which are hazardous both to humans and the environment if disposed of incorrectly using recycled

materials for new products produces up to 80% less carbon emissions than processing virgin materials.

#### Electronic waste collection point

Penrith City Council's Community Recycling Centre (CRC) provides the community with a free and convenient way to dispose of problem waste in an environmentally friendly way.

The CRC is located at:

**Penrith Community Recycling Centre**  
Gate 3, 96 Dunheved Circuit, St Marys  
Phone 02 4732 7777

#### **What is problem waste?**

Problem waste includes items such as paints, batteries, light bulbs, gas bottles and oils that you cannot dispose of in your household bins or in a bulky waste collection. To learn more about problem waste

#### Sustainability

UFD notes that the Penrith City Council is committed to environmental, economic, and social sustainability. With this being the case, the Opal Health Care's Home will be required to work in conjunction with the Penrith City Council's waste reduction initiatives.

### **3.12 Recommended signage for waste areas.**

UFD recommends that signs for garbage, recycling should be used. These signs will need to comply with the standard signs promoted by the Environmental Protection Agency.

WH+S Standard wall posters and bin lid stickers etc. must be provided in accordance with Australian Standard 1319:1994 Safety signs for the occupational environment.



**Figure 4 Waste signage to be used where applicable in accordance with Australian Standards.**

## 4. Light fittings

It is estimated that Australia generates from 30+ million end-of-life fluorescent tubes and a further 20+ million end-of-life mercury-containing globes (CFL/HID etc.). Currently, around 96% of this end in landfill.

Mercury is a potent neurotoxin that contaminates water supplies through leakage from landfill.

There is growing environmental and social desire to eliminate dangerous chemicals from entering landfill and subsequently finding their way into waterways and our living environment.

At the same time, it is also highly desirable to recycle as much metal and glass to further reduce the community's carbon footprint.

The Federal Government recently launched the Fluoro Cycle Scheme (Sep 2010), which is indicative of the issue's growing importance.

Based on this information UFD recommends that as part of a recycling process a Company such as Lamp recyclers assist in collecting broken lamps and bulbs. <http://www.lamprecyclers.com.au/default.aspx>

Lamp Recyclers can now help you to comply with environmental standards, with their Ezy-Return reply-paid lamp recycling packs. Opal Health Care would simply fill the pack(s) and lodge them at any Australia Post outlet/agent.

## 5. Waste removal vehicle requirements

The Veolia vehicles used for the collection of general and recyclable waste will be rear/end loading. With UFD recommending a series of 1,100 litre bins be utilised the diagram below indicates the type lifting mechanism to be employed.

**Note:** The noted rear lift waste collection vehicle will remove waste from 120, 240, 660 and 1,100 litre waste bins as required.

### 8. Rearlift Trucks



#### Rear Lift

Vehicle Specification	Measurement
Overall Length	9.8 metres
Travel Height	3.4 metres
Working Height	3.4 metres
Turning Circle Diameter	18.0 metres

**Figure 5 Proposed Rear lift waste removal vehicle notional details.**

Turning circle considerations must also include allowances for driver steering error and overhangs. Refer to the Traffic Consultant Report for details. The vehicle will require a turning circle and length that is in alignment with the Traffic Consultants report and the noted Veolia Waste Collection vehicle.

#### Vehicle Height:

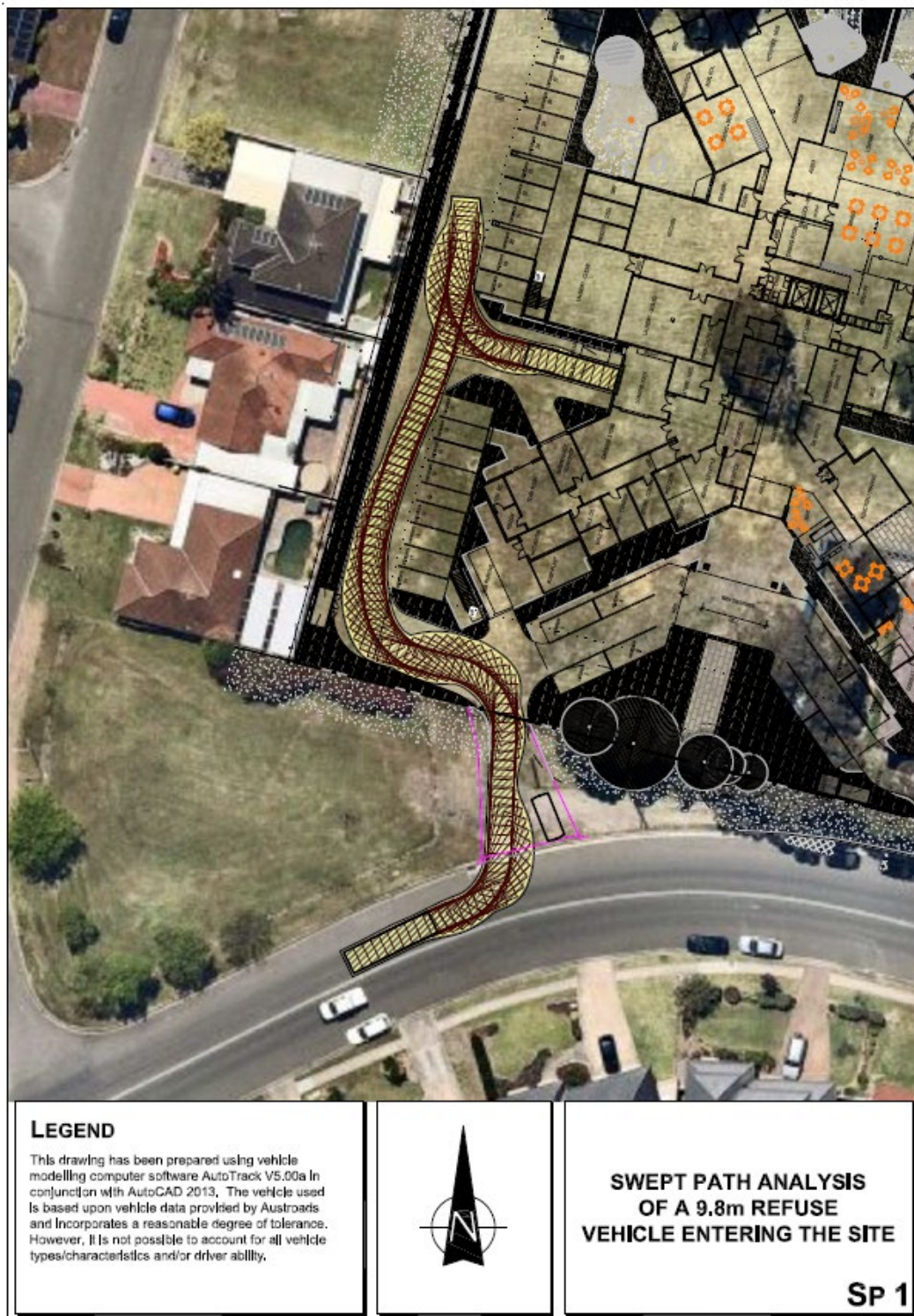
The noted rear lift vehicle (working height) vehicle is 3,400mm in height.

#### Access and turning provisions:

Best design practice for access and egress from the St Clair Home will always call for a separate entrance and exit to allow the collection vehicle to travel in a forward direction. Where there is a requirement for collection vehicles to turn at a cul-de-sac head within a development, the design must incorporate either a bowl, 'T' or 'Y' shaped arrangement (this has been allowed for by the Traffic Consultant) Please refer to the Traffic Consultant drawings below.

The design aspect of waste removal must be considered by the Architect and should include the following:

- The presence of parked cars on access roads
- Trucks must only be expected to make a three-point turn to complete a U-turn.



**Figure 6 Vehicle entering Swept Path details provided by the Traffic Consultant.**





**Figure 7 Swept travel path for vehicle exiting the site.**

Waste pick up/collection zone:

To assist the private waste collection agency and ensure that the vehicles used in the collection of waste do not clash with the Homes building elements, **UFD notes that a dedicated waste collection zone will be allowed for.** Key features of the waste collection processes are as follows:

- The **Contracted waste collector** must collect all general and recyclable generated on a regular basis. The collection of waste and pick-up times will be coordinated with Home Maintenance team to ensure that all bins ready for collection are correctly located prior to the pickup time.
- Maintenance team members or the Private Waste collection agency will be required to move the required waste bins from the waste management area to the noted waste collection point for pick up before returning the waste bins back to the allotted waste areas.
- The waste collection area will have enough height to allow for the waste collection vehicle to gain movement into this area.
- Appropriate WH+S signage will be provided in and near the waste collection loading area.

**Note:** Vehicle access and vehicle movements shall be aligned with the NSW Department of Environment and Climate Change (Better practice guide for Waste Management in Multi-unit dwellings). Which details the following.

- The collection point must be designed to ensure that the waste collection vehicle can safely access and manoeuvre within the Home.
- The waste vehicle must be able to enter and exit the site in a forward direction. The collection point should be located to minimise manoeuvring within the site.
- The travel route shall suit the dimensions of the waste collection vehicle. Travel routes shall be adequately surfaced in accordance with EPA requirements.
- The grades of entry must not exceed the capabilities of the waste collection vehicle.

## 7. Spatial allowance – Waste area

Based on the above information of waste bins being picked up multiple times per week, UFD note that a nominal allowance of **41 square meters** shall be provided.

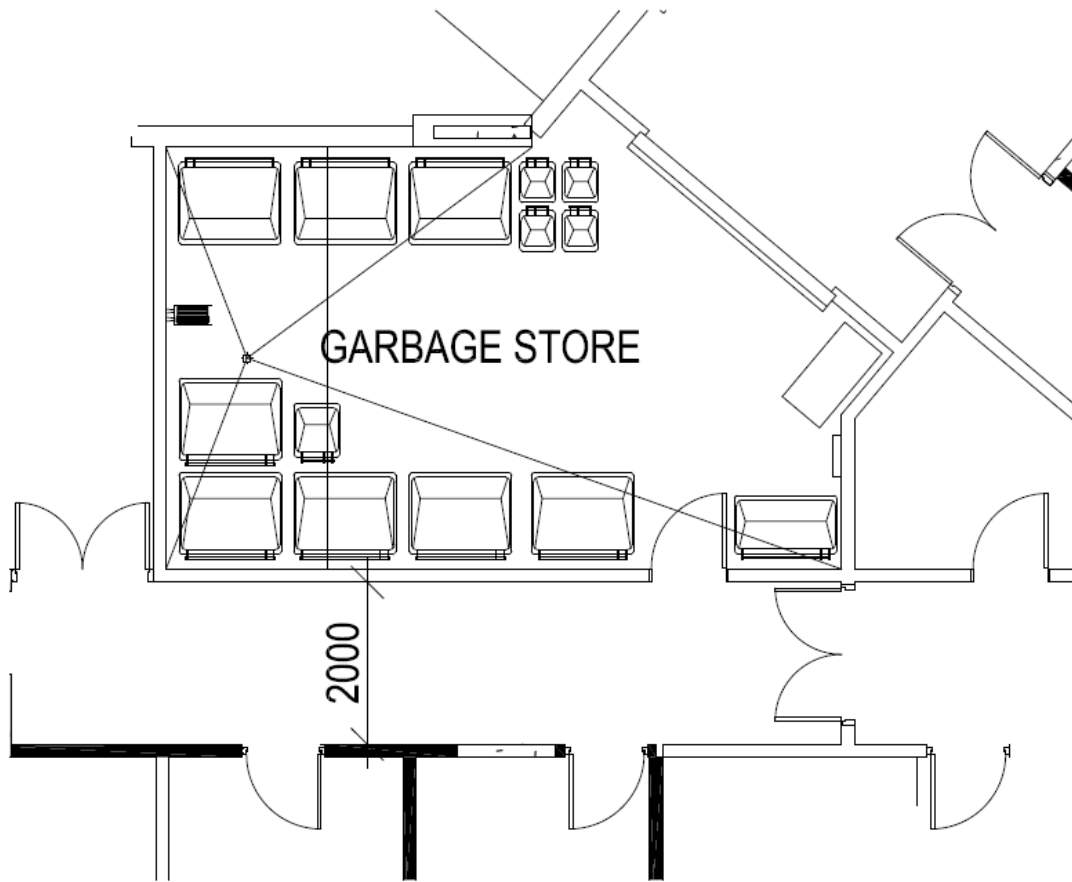


Figure 8 Proposed Waste Management Area.

## 8. Conclusion

The Waste Management report that you have just read is a set of comments based on the following:

- AS1668.2-2012 – Mechanical ventilation.
- Current BCA requirements.
- AS4586-2013 – slip resistance ratings.
- Current Work Health and Safety Requirements.
- AS4123.7-2006 mobile waste containers.
- AS1680-1990 – Artificial lighting requirements for Storage areas.
- Australian Standard 1319:1994 Safety signs for the occupational environment.
- NSW Department of Environment and Climate Change (Better practice guide for Waste Management in Multi-unit dwellings).

Additionally, all material provided by UFD has always been done so based on being independent and representing the Stakeholders best interest. Thought and consideration has been provided on how to reduce operational costs, consolidate labour costs, and increase Safe work practices across the Home.

By Opal Health Care moving ahead with the recommendations as noted in this report, UFD note that they are rising to the challenge of creating an efficient and sustainable Waste management operation as part this new Home that will cater to the Waste management needs of the Home in the years to come.

4-WHEELED CONTAINER SYSTEMS

**SULO**<sup>®</sup>

## 1100 LITRE DOMED LID CONTAINER WITH THE INNOVATIVE "LID WITHIN A LID"



**UNIQUE DESIGN  
EASY HANDLING  
IMPROVED SAFETY**

### Safety Handles

- Easy grip handles on all sides
- Optimum manoeuvrability
- Compatible with identification and weighing systems



### Safety Trunnion

- Increased stability
- Increased safety when lifting



### Safety Lid

- Easy and safe handling
- Simple hinged "lid within a lid"
- Prevents depositing of bulky waste



# 1 100 Litre Container With "Lid Within A Lid"

## Material

- Polymer components:
  - Injection moulded from specially designed HDPE
  - Resistant to decay, frost, heat and chemicals
  - Special UV-stabilisers provide excellent ageing characteristics
- Corrosion resistant steel components
- Noise reduction:
  - Wheel assemblies with solid rubber tyres
- Long service life:
  - High quality materials
  - Excellent manufacturing processes
  - Withstands exposure to high mechanical stress levels
- Recycling:
  - All container parts are recyclable

## Design

- Easy to use, smaller "lid within a lid"
- In accordance with the safety requirements of EN 840-6
- Special design prevents water ingress
- Versatile, with a comprehensive accessories range
- Easy grip handles on all sides
- Safe, easy handling, even with heavy loads
- Wide lifting trunnions for improved safety during lifting, even with awkward loads
- Various wheel assembly configurations for different applications
- Water drainage plug as standard
- Compatible with identification and weighing systems
- Different colour options
- Prevents depositing of bulky waste
- Easy to clean due to smooth surfaces and rounded internal corners

## Accessories

- For accessories and special design variations such as lid apertures, locks and towing brackets, please refer to the separate accessories sheet for 4-wheeled containers

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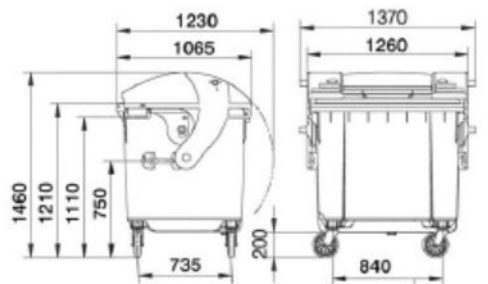
## Quality

- Certified according to DIN EN 840 and RAL GZ 951/1
- Constant quality control through manufacturers laboratory as well as independent institutes

## Dimensions - Weights - Standards

- Nominal volume: 1100 litres
- Net weight: approx. 65 kg
- Max. load: 440 kg
- Permitted total weight: 510 kg

Measurements to be used as a guide only - variations will occur



Note: Certification and Quality Marks depicted in this brochure are registered to SULO Umweltschick GmbH & Co. KG

## Colours

- Standard colours: green, blue, yellow
- Special colours are available on request
- All additives are cadmium free and environmentally friendly



## Imprints and markings

- Manufacturer, year of manufacture, material
- Nominal volume, max. permitted total weight
- EN 840, RAL markings
- Individual markings with imprints, hot-foil printing or adhesive labels available on request\*

## Appendix B EPA Waste Generation Rates.

Table F3: Calculating commercial and industrial waste and recycling generation rates

Premises type	Suggested generation (litres per unit per day)		Comments
	Waste	Paper, cardboard and commingled materials	
Accommodation: non-hotel/motel	10	5	Based on the number of guest rooms with other types of facilities calculated separately. Note: function rooms are based on potential bookings and restaurant data.
Aged care	5	1	Per resident. Kitchen to be calculated as per restaurant. Need to determine if other services are offered. Note that other waste such as clinical waste will be generated.
Cafes	100	120	Based on per 100 m <sup>2</sup> floor space.
Carparks (commercial)	1	1	Based on per 100 m <sup>2</sup> floor space.

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Better practice guide for resource recovery in residential developments

Childcare	20	5	Per child
Cultural and recreational services: (museums, theatres, cinemas)	5	10	Based on per 100 m <sup>2</sup> floor space for patrons (seating areas for theatre/cinema). Calculate cafes separately. Calculate office areas separately.
Dry cleaning	15	5	Per premises (80 m <sup>2</sup> )
Food retail: bakeries	240	120	Per premises (80 m <sup>2</sup> )
Food retail: butchers	250	50	Per premises (80 m <sup>2</sup> ). If organics recycling implemented, then 150L may be transferred from waste.
Food retail: seafood	250	50	Per premises (80 m <sup>2</sup> ) If organics recycling implemented, then 150L may be transferred from waste.
Food retail: greengrocers	540	60	Per premises (80 m <sup>2</sup> ) A higher rate needs to be considered for larger premises (based on a pro-rata increase for the 80 m <sup>2</sup> premises). If organics recycling implemented, then 300L may be transferred from waste.
Food retail: other	120	80	Per premises (80 m <sup>2</sup> )
Food retail: takeaway (with sit-down area)	500	240	Per premises (80 m <sup>2</sup> ) – day operation only Note consideration must be given to the number of hours of operation.
Food retail: takeaway (food preparation only)	120	60	Per premises (80 m <sup>2</sup> )
Gymnasiums	20	15	Based on per 100 m <sup>2</sup> floor space
Hair and beauty	50	40	Per premises (80 m <sup>2</sup> )
Hotels/pubs (without meals provided at the bar)	50	50	Based on per 100 m <sup>2</sup> floor space. Calculate restaurants separately (including meals served at bar) as well as accommodation (use motel rate).
Licensed clubs (with gaming)	50	50	Based on per 100 m <sup>2</sup> floor space. Calculate restaurants separately (including meals served at bar) as well as accommodation (use motel rate).
Medical	20	10	Per number of doctors' consulting rooms. Need to determine if other services are offered. Note that other waste such as clinical waste will be generated.
Motels	10	5	Based on the number of guest rooms with other types of facilities calculated separately.
Offices	10	15	Based on per 100 m <sup>2</sup> floor space that is used for staff activities (e.g. exclude lobby areas).
Optical	15	25	Per premises (80 m <sup>2</sup> )
Restaurants	400	280	Based on per 100 m <sup>2</sup> floor space
Retail: chemists	20	45	Per premises

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Better practice guide for resource recovery in residential developments

Retail: chain stores (clothing, manchester etc.)	5	20	Based on per 100 m <sup>2</sup> floor space. Other facilities such as cafes calculated separately.
Retail: other non-food	50	100	Per premises
Retail: grocery and convenience stores	120	240	Based on per 100 m <sup>2</sup> floor space
Retail: homeware and kitchenware shops	20	120	Per premises
Retail: newsagents and stationery shops	30	60	Per premises
Retail: office-based (e.g. travel agents)	30	40	Based on per 100 m <sup>2</sup> floor space that is used for staff activities (e.g. exclude lobby areas).
Retail: variety gift stores	20	120	Per premises
Schools: pre-school	10	15	Per student
Schools: primary	15	20	Per student
Schools: secondary	20	15	Per student
School: tertiary	10	10	Per student (full time equivalent). Note that other waste such as chemical waste will be generated. Need to calculate other services (e.g. food halls, student accommodation, childcare, gyms), separately.
Showrooms	10	25	Based on per 100 m <sup>2</sup> floor space
Supermarkets	240	300	Based on per 100 m <sup>2</sup> floor space. Larger supermarkets may have a number of recycling streams, so advice should be sought as to what systems will be provided.
Wholesale trade	100	50	Based on per 100 m <sup>2</sup> floor space

Table F3 has been developed using a range of data sources including literature review of other published waste generation data and the results from the 2014 NSW EPA Generator site survey of the commercial and industrial waste stream in the regulated areas of NSW as well as comparisons to actual waste audit data from a range of commercial types.



## Appendix C. Brian Lennox CV.

### CV for BRIAN JAMES LENNOX

Brian Lennox FCSI is a foodservice, laundry, and operational waste management design consultant, who specialises in the design of compliant facilities that meet the needs of the operator.

A refrigeration technician by trade, Brian has also successfully completed accreditations in Engineering drafting, AutoCAD, Small business operations and freelance journalism having contributed articles to International and local industry magazines.

Brian has been involved in the foodservice industry for over thirty (35) years working in various roles which have culminated in his work over the last decade as an operational Waste management, Foodservice and Commercial Laundry Design consultant.

Having worked on a diverse range projects over the past twenty (20) years including the National Portrait Gallery, Park Hyatt Sydney, Villawood Detention Centre, Google, Apple, South Sydney Juniors Rugby Leagues Club, Bankwest corporate head office in Perth, Virgin airline lounges throughout Australia, Busselton Health Campus, Tetsuya's Restaurant Sydney, Bupa Care Services projects in Wodonga, Bankstown, Sutherland and the Goodman Fielder test kitchen, Brian has a solid understanding of controlling budget costs, spatial planning requirements and compliant laundry, waste and foodservice facility designs.

Brian specialises in providing credible advice concerning sustainable Waste management, laundry and foodservice designs which operate on less water, chemicals, power, and labour. This provides the operator with a healthier bottom line. Using cutting edge ideas and emerging trends in sustainable designs, Brian looks to bring the future of foodservice and laundry designs into existence now.

Australian Standards, health code regulations, Occupational health and safety, BCA requirements and HACCP procedures are all applied in the designs created by Brian and his team.

Brian is a Professional Member of the FCSI (Foodservice and Consultants Society International) and WMAA (Waste Management Association of Australia) and as such works in accordance with the ethical guidelines of excellence outlined by these Societies. In 2010 Brian was promoted to the Worldwide Council of members who oversee the Professional standards of the Society, assessing and giving direction to material that assists all members to continue growing professionally.

Brian is the Company director of Universal Foodservice Designs. This firm has been in existence for the past ten (10) years and works on design and documentation projects throughout Australia. The Company has a total staff of nine (9) which Brian manages on a basis.

Brian's unique background allows him to offer the Client a range of services including Facility Design, budget control, Specification and Documentation packages, tender review assistance, services co-ordination, Project Management assistance and facility dilapidation and certification reporting.

Brian provides important input to any Consultant design team.

Brian can be contacted on 0422 468 834 or on his Email address at Brian@ufd.net.au.