



Operational Waste Management Plan
University of Sydney
F23 Administration Building
April 2016

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1 Introduction

This Waste Management Plan details the compliance of the University of Sydney F23 Administration Building Development with NSW Department of Planning and Environment requirements, and general best practices in management of operational waste and recycling.

Projected quantities of operational general waste and recycling are based on office, function room etc., and retail tenancy floor areas, and expected future occupancy and usage.

2 Waste & Recycling Volume Calculations

Expected quantities of general waste and recycling have been estimated based on the NLA of the site's expected tenancies – based on the information provided to us, these are as follows:

Tenancy Area	NLA
Café & Kitchen	247
Office	5584
Function Rooms*	1605
Total	7431

* Includes Symposium and Atrium areas

The following rates have been used to calculate expected generation of waste and recycling by the building's tenants and are based on Monday-Friday operation:

Waste & Recycling Generation Rates (Litres/100 m ² /Week)				
Tenancy Area	Paper/Cardboard Recycling	Commingled Recycling	Organic Recycling	General Waste
Café & Kitchen	40.0	30.0	10.0	80.0
Office	8.0	1.5	0.5	10.0
Function Rooms	2.0	0.5	0.2	1.0

These expected volumes are based on Waste Audit & Consultancy Services' operational data for similar facilities; the waste generation rates detailed on p.25 of the *Council of the City of Sydney Policy for Waste Minimisation in New Developments* have also been consulted for reference.

The following tables show projected daily and weekly volumes for each waste and recycling stream, as well as details of equipment, collection frequencies, and required floor space for equipment storage within the storage room.

Calculations of required floor space are based on standard bin dimensions as set out in the The Department of Environment and Climate Change NSW (DECC) *Better Practice Guide for Waste Management in Multi-Unit Dwellings* 2008, p. 111 and are premised on 3 x weekly collection by the University's waste contractor and use of 240-litre and 120-litre MGBs (mobile garbage bins).

Waste Volume Calculations – Office & Function Room Areas						
Material Stream	Bin Size Litres	No. Bins	Collections per Week	Litres/ Week		Storage Area m ² Required
				Capacity	Predicted	
Paper/Cardboard Recycling	240	5	3	3,600	2,392	2.15
Commingled Recycling	240	1	3	720	459	0.43
Organics	120	1	3	360	156	0.28
General Waste	240	5	3	3,600	2,870	2.15
Oil Recycling Unit	Not required as no commercial kitchen in office tenancy					
Total Area Required for Bin & Equipment Storage						6.51 m²
Area for Bin Washing						1.30 m²
Total Area Required (Allowing an additional 30% for space between bins)						7.81 m²
Total Area Available in B1 Storage Area Based on Current Building Plans						24.75 m²

Waste Volume Calculations – Café & Kitchen						
Material Stream	Bin Size Litres	No. Bins	Collections per Week	Litres/ Week		Storage Area m ² Required
				Capacity	Predicted	
Paper/Cardboard Recycling	240	1	3	720	484	0.43
Commingled Recycling	240	1	3	720	363	0.43
Organics	120	1	3	360	121	0.28
General Waste	240	2	3	1,440	968	0.86
Oil Recycling Unit		1	N/A	100 total	N/A	1.5
Total Area Required for Bin & Equipment Storage						4.55 m²
Area for Bin Washing						1.30 m²
Total Area Required (Allowing an additional 30% for space between bins)						5.85 m²
Total Area Available in L1 Storage Area Based on Current Building Plans						8.82 m²

3 Waste Management & Recycling Systems

The waste and recycling systems to be implemented for the building will comply with the University's requirements, which are detailed in the C The green arrow shows the movement pathway for bins from the storage room to the lift, which will be used to take waste to Level 1 for wheeling out to Fisher Road via the building lobby.

CIS Building and Architecture Standard, Sections 6.3.1 Facility Centralised Waste Recycling Stations and 6.3.2 Facility Waste Storage And Collection.

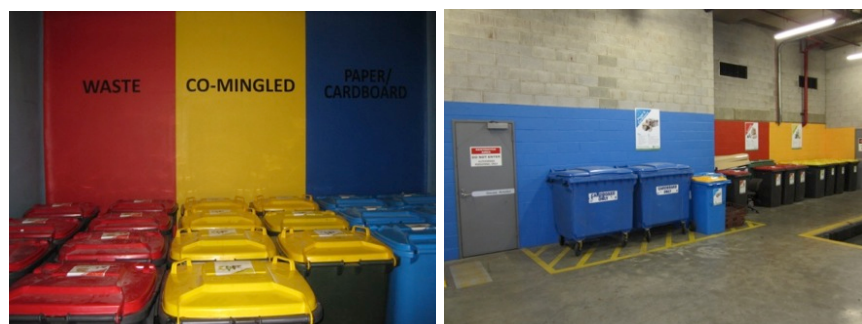
Material streams (waste and recycling) for office and function room areas and the café are detailed in the tables above.

Cleaners will bring office waste and recycling to the basement storage room where the materials will be deposited in the designated bins. Café waste and recycling will be handled by the operation's own staff (this is normal practice) and waste will be taken to the storage room adjacent to the café kitchen.

All bins should be colour-coded to conform to the Australian standard as shown below, or otherwise an alternative scheme consistent with the University's existing systems.

Material Stream	Bin Body Colour	Lid Colour
Paper Recycling	Blue	Blue
Cardboard Recycling	Green	Blue
Food Organics	Burgundy	Burgundy
Commingled Recycling	Green	Yellow
Used Cooking Oil Recycling	NA	NA
General Waste	Green	Red

Storage areas should also be colour-coded in similar manner as shown in the examples below:



4 Storage Area Requirements

Office and café general waste and recycling will be stored, respectively, in the rooms shown in Basement 1 and Level 1 areas on the drawings in Section 7.

Each of the storage areas will require a bin wash facility of around 1.3 square metres. Space will also need to be allocated in the café bin storage room for an oil recycling unit, as the kitchen may produce waste oil from cooking once operational.

The *CIS Building and Architecture Standard*, Section 6.3.2 *Facility Waste Storage And Collection* specifies the following:

Designers must incorporate sufficient centralised segregated waste recycling and general waste collection storage facilities in new building designs or major refurbishments so they can be readily accessed by building users.

Waste storage rooms must be provided with appropriate impervious floor and wall finishes and must be provided with wash-down facilities including hot and cold water supplies and wastes. Provision must be made for a main waste recycling and general waste collection storage space sized to safely accommodate expected daily maximum quantities of waste and recyclables.

The main waste recycling and general waste collection storage room must include bin cleaning facilities and compactor as appropriate. Adequate and safe vehicle access, entry and egress provisions must be provided for movement and manoeuvring of heavy waste collection vehicles.

In addition we suggest the following best practice measures for the waste rooms to minimise odours, deter vermin, protect surrounding areas, and make each a user-friendly and safe area:

- Floor to be sealed with a two pack epoxy
- Walls and floor surfaces are flat and even
- All corners covered and sealed to 100mm up to eliminate build-up of dirt
- A bin wash facility with hose cock with tap height of 1.6m, and drainage to sewer
- All walls painted with light colour and washable paint
- Electric outlets to be installed 1700mm above floor levels
- The room must be mechanically ventilated
- Waste rooms must be well lit (sensor lighting recommended), with switch installed at 1.6m
- All personnel doors are hinged and self-closing
- Conformity with the Building Code of Australia, Australian Standards and local laws
- (Optional) automatic odour and pest control system installed to eliminate all pest types and assist with odour reduction – this process generally takes place at building handover

5 Bin Movement

Maintenance/cleaning staff will collect the bins from the storage rooms, and bring office waste and recycling to the ground floor via goods lift. They will then wheel the bins through the lobby to the collection area on Fisher Road.

Café waste and recycling will be taken from the ground floor storage room, via an internal ramp, directly outside and wheeled to the external collection area. Internal and external bin movement pathways are shown in Section 7.

Removal of waste and recycling from the building will be aligned with the University's waste contractor's collection timetable so that bins are put out as close to the collection time as possible. It is our understanding that the current collection schedule is 3 x weekly, Mon-Wed-Fri. All bins should be put out for collection at the close of business on Friday to avoid storage of waste within the building over the weekend.

Maintenance/cleaning staff will also have to bring the bins back to the building as soon as possible following collection, and return them in their correct configuration in each of the internal storage rooms. These staff will also be responsible for washing bins as required (at least weekly).

6 Compliance Conditions

The table below details compliance with the requirements of the NSW Department of Planning and Environment for waste management planning for developments, which state that a Waste Management Plan containing the following elements is to be submitted to the certifying authority before a Construction Certificate can be issued:

Ref.	Requirement	Compliance Statement
C22a	The amount of demolition, excavation, and construction wastes likely to be generated and how these materials are to be sorted and dealt with	See Demolition and Construction Waste Management Plan
C22b	The design and construction of the internal roads, driveways, turning circles, and other infrastructure required for waste services in the development is in accordance with the stated document	Not applicable as regards internal roads etc. as waste presentation and collection will take place at kerbside
C22c	All waste generated by the approved development (including residents, businesses, and any other activity on the site) is to be collected by a private waste contractor	Will comply
C22d	Bulky waste items are to be collected by a private waste contractor	Will comply
C22e	An on-site caretaker to manage the storage and removal of waste generated by the approved development	Will comply
C22f	Retention of demolition, excavation, and construction waste/recycling dockets on site to confirm which authorized waste/recycling facilities received the material for recycling and disposal	See Demolition and Construction Waste Management Plan

7 Marked Up Drawings

The detailed drawings below have been marked up from the following DA drawings:

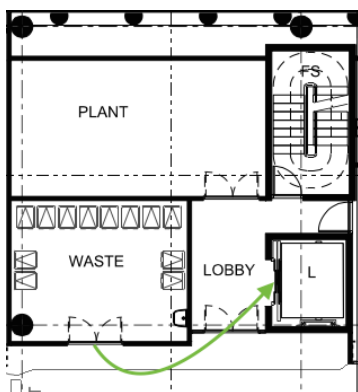
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F23-A-DA-0303-PDF-1

These show waste storage areas and movement pathways from the B1 and Ground Level storage areas to the loading point on Fisher Road.

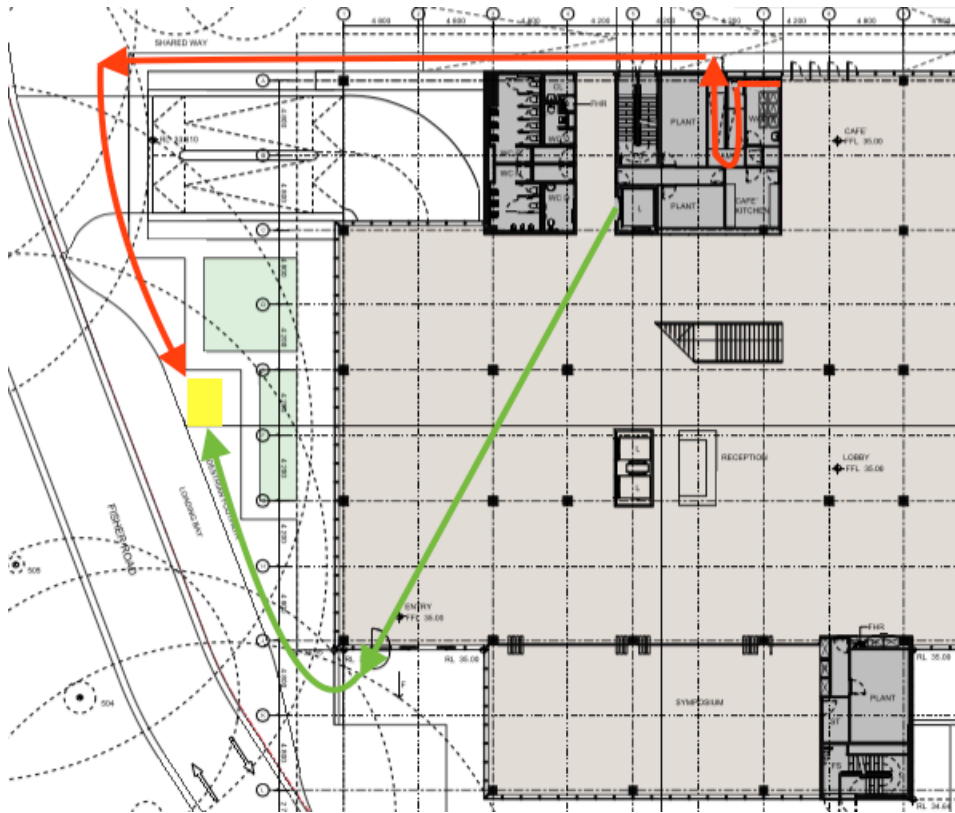
Basement 1

The green arrow shows the movement pathway for bins from the storage room to the lift, which will be used to transport the bins to Level 1 for cleaning staff to wheel out to Fisher Road, via the building's lobby.



Level 1

Green arrows show the movement pathway for bins for office waste and recycling; red arrows indicate the pathway for waste and recycling from the café to the kerbside loading point (the yellow shaded area).



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