

DAM CHARITY AND RESIDENTIAL

3115 HURONTARIO STREET, MISSISSAUGA, ONTARIO

WASTE MANAGEMENT REPORT

PRESENTED BY:

**CINI•LITTLE INTERNATIONAL, INC.
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EXECUTIVE SUMMARY

Cini•Little International Inc. has been retained by Sweeny&Co Architects to investigate the waste handling alternatives for the DAM Charity and Residential project a new residential development located on the intersection of Hurontario Street and Kirwin Avenue in Mississauga, Ontario.

The development is a residential development comprising of a high-rise building consisting of 518 residential units. The building will have a Two Chute System connected Recyclables and Garbage bins. Garbage shall be compacted using an apartment compactor underneath the chute system. The chute systems include intake rooms on each residential floor and termination/receiving room at Ground Floor level. The chute system for residents is utilized for general trash and commingled recyclables (plastics, glass, metals). The chute receiving rooms will also serve as staging for empty and full dumpster bins. Additionally, there will be a separate “bulk goods” waste staging room that is accessible by Occupants. Staging area for bins is determined for the residences per **Region of Peel Waste Requirements for Design of New Development and Collection**. On the day of pickup, the Property Management staff will bring the bins from the Residential garbage and Recycling room at the Ground floor to the ‘Type G’ loading space which is located at the northwest side of the building with an access from Kirwin Avenue.

Based on the calculations, it is estimated that the residential component will generate 198.03 cubic meters of waste per week, of which 99.02 cubic meters can be easily removed for recycling. 33.01 cubic meters of compacted waste shall be required to be picked up by bulk lift waste collection vehicle.

This development has a Charity Centre at Level 1 and Level 2 and has a Retail unit at Level 1 of the building. The garbage and recycling materials from the Charity Centre and the Retail unit will be stored in the Charity Centre Garbage Room and Retail Garbage Room located at the Ground floor level near to Charity Centre and Retail unit. The Charity Centre and Retail staff will bring their garbage and recycling materials to the respective Garbage room. The garbage and recycling materials from the Charity Centre and Retail will be collected in Front-end load dumpster bins.

Based on the calculations, it is estimated that the Charity Centre will generate 5.13 cubic meters of waste per week, of which 2.2 cubic meters can be easily removed for recycling. Thus, a total of 2.9 Cubic Meters of uncompacted garbage will be generated and will need to be collected per week

Similarly, it is estimated that the Retail will generate 3.24 cubic meters of waste per week, of which 1.4 cubic meters can be easily removed for recycling. Thus, a total of 1.8 Cubic Meters of uncompacted garbage will be generated and will need to be collected per week



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INTRODUCTION

The volumes and types of waste presented in this report are estimates based on our own experience and empirical data as it pertains to multi-purpose building. The goals of the preferred waste-handling programme are to follow waste handling regulations and to minimize the cost of handling the materials while addressing the problems of storing both recyclable and non-recyclable waste material on site for pick-up. This report will function as a general guideline with the understanding that the Property Management Company of this complex may refine a specific detailed program.

We welcome comment on the findings herein and will work closely with Sweeny&Co Architects, retained professionals, and the Region of Peel to ensure that appropriate waste handling facilities are incorporated. Our goal is to develop a functional project that meets the needs of its owners, tenants, users, and surrounding community, while following practical waste handling regulations.

PROJECT COMPONENTS

One new mixed-use development to be built with one building with a maximum height range of 42 storeys and with up to 518 residential units in total and a Charity Centre and Retail component in it.

- ❖ The building will feature outdoor/indoor amenity spaces.
- ❖ One Residential Garbage and Recycling Room will be located on level 1 of the building.
- ❖ The building will have a two-chute system with a compactor connected to one chute for garbage only and the second chute will be utilized for recyclable bins.
- ❖ The garbage and recycling materials from the Charity Centre will be stored in the Charity Centre Garbage Room located on level 1 and garbage and recycling materials from the Retail unit will be stored in Retail Garbage Room located on level 1.
- ❖ The site will be designed to satisfy the Region of Peel requirements for waste pick up of garbage and recycling materials for the residential component of the building.



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GENERATION ESTIMATES: RESIDENTIAL

Table 1 illustrates the waste and Recyclable material generation estimates for this complex. The estimates are calculated in volumes shown as Cubic Meters per week. All calculations are shown uncompacted except for the last column, which shows the waste to landfill as compacted. These volumes, in conjunction with the architectural plans, are used to determine the equipment, spaces and frequency of collection required to service the building.

TABLE 1

WASTE GENERATION ESTIMATE CUBIC METERS [m ³] PER WEEK											
WASTE GENERATION ESTIMATE(m3)		A	B	C	D	E	F	G	H	I	J
DESCRIPTION	TOTAL	WASTE GENERATION ESTIMATE IN m ³	ORGANIC WASTE	CORRUGATED CARDBOARD	GLASS CANS PLASTIC	NEWSPRINT PAPER	E-WASTE	HAZARDOUS MATERIALS	REMOVABLE RECYCLABLE MATERIALS	TOTAL WASTE TO LANDFILL	COMPACTED AT 3:1 RATIO
	UNITS	A	B	C	D	E	E	E	B+C+D+E+F+G	A - H	I/3
RESIDENTIAL UNITS	518	198.03	29.70	29.70	29.70	9.90	1.98	0.99	99.02	99.02	33.01

Based on the calculations above, it is estimated that 518 residential units will generate 198.03 cubic meters of waste per week of which 99.02 cubic meters can be easily removed for recycling. Using a typical compaction ratio of 3:1, a total of 33.01 cubic meters of compacted waste will be collected weekly by bulk-lift vehicles and taken to the landfill site.

GENERATION ESTIMATES: CHARITY CENTRE AND RETAIL

Table 2 illustrates the waste and Recyclable material generation estimates for the Charity Centre and Retail. The estimates are calculated in volumes shown as Cubic Meters per week. All calculations are shown uncompacted except for the last column, which shows the waste to landfill as compacted. These volumes, in conjunction with the architectural plans, are used to determine the equipment, spaces and frequency of collection required to service the building.

TABLE 2

3115 Hurontario Street - Commercial		Total Waste Generation Estimate Cubic Meters (CM) per WEEK	(1) Organics / Compostable (CM/Wk)	(2) Corrugated Cardboard (CM/Wk)	(3) Commingled Recyclable (CM/Wk)	(4) Mixed Paper (CM/Wk)	(5) Universal & Recyclable Hazardous (CM/Wk)	(6) Non-Recyclable Hazardous (CM/Wk)	Total Diversion from Landfill	Total Diversion %	General Trash (CM/Wk)	Compacted 3:1 Ratio (CM/Wk)
RETAIL												
	Retail	3.24	0.00	0.65	0.49	0.16	0.06	0.03	1.4	43%	1.8	0.6
	The Dam Charity Centre	5.13	0.00	1.03	0.77	0.26	0.10	0.05	2.2	43%	2.9	1.0
TOTAL WASTE VOLUMES		8.4	-	1.7	1.3	0.4	0.2	0.1	3.6		4.8	1.6

Based on the calculations above, it is estimated that Retail will generate 3.24 cubic meters of waste per week of which 1.4 cubic meters can be easily removed for recycling. Thus, a total of 1.8 cubic meters of garbage will be collected weekly by retail unit. Similarly, it is estimated that Charity Centre will generate 5.13 cubic meters of waste per week of which 2.2 cubic meters can be easily removed for recycling. Thus, a total of 2.9 cubic meters of garbage will be collected weekly by Charity Centre.

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WASTE HANDLING SYSTEM: RESIDENTIAL

Region of Peel guidelines considers the storage requirement for Apartment compactor and all the dumpster bins required to store General Trash and Commingled Recyclables to be generated from the residential component of the development. For every Dumpster Bin 5 SM of space shall be required to store each Front-End Dumpster Bin. According to Region of Peel guidelines for Multi residential complexes, following Storage Equipment are required for various types of Waste Streams

Landfill Waste: Ten 3-CY Front-End Dumpster bins should be provided to store compacted Landfill Waste.

Recyclables Waste: Twelve 3-CY Front-End Dumpster Bin should be provided to store Recyclables Waste

Based on 518 units, **150 SM** for space for **Residential Garbage and Recycling Room** is recommended. In the proposed development, Residential Garbage and Recycling Room will be located at Ground Floor level. An additional **10 square meters separate room for bulky waste items accessible by residents** is also required.

111 SM of space shall be provided as **Staging Area** at the Waste loading Bay to stage the bins to be emptied by Bulk Lift vehicle belonging to Region of Peel.

Please refer to **Table 3**

TABLE 3

Number of Garbage Bins		3 CY	Room Size		
	9.59	10	3 CY	140	
Number of Recycling Bins			Compactor	10	
	11.51	12		150	SM
Number of Organic Bins (Future Provision)		2 CY	Plus 10 SM Bulk Space	160	SM
	5.18	6	Bin Staging Area		
			3 CY Bins	11	
Total bins		28	Staging Area*	65	SM

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WASTE HANDLING SYSTEM: CHARITY CENTRE AND RETAIL

Based on the calculations, for the Charity Centre TWO 3-CY front-end load dumpster bins will be required for this estimated volume of uncompacted garbage, ONE 3-CY front-end load dumpster bins will be required for commingled recyclable. Similarly, for the Retail unit ONE 3-CY front-end load dumpster bins will be required for this estimated volume of uncompacted garbage, ONE 3-CY front-end load dumpster bins will be required for commingled recyclables.

General Garbage

- Building will have a Two Chute System connected for Recyclables and Garbage. The Garbage chute will be connected to a compactor to compact the garbage only.
- Residents will dispose their garbage through the communal chute rooms located on each floor which dispatches to a designated residential garbage and recycling room located on Ground floor level of the building.
- 3-cubic yard/ 2.3 cubic meters dumpster bins will be used to collect general trash.
- During pick-up days/time building management will maneuver full bins to the staging area and Waste loading space located in Northwest Quadrant of the Development on Ground floor level of the development to be collected and emptied by Bulk collection vehicle belonging to Region of Peel and return empty bins.
- One bin must always remain under the chute system.
- On pick-up days the Retail and Charity Centre staff will bring the front-end load dumpster bins of general trash to the pick-up location.

Recyclable Materials (Glass, Metal and Plastic)

- Residents will dispose their recyclables waste through the communal chute rooms located on each floor which dispatches to a designated residential garbage and recycling room located on Ground floor level of each building.
- 3-cubic yard/ 2.1 cubic meters dumpster bins will be used to collect recyclable waste.
- During pick-up days/time building management will maneuver full bins to the staging area and combined Waste loading space located in Northwest Quadrant of the Development on Ground floor level of the development to be collected and emptied by Bulk collection vehicle belonging to Region of Peel and return empty bins.
- One bin must remain under the chute system at all times
- On pick-up days the Retail and Charity Centre staff will bring the front-end load dumpster bins of recyclable waste to the pick-up location

Bulk Items

- Residents of the development will bring down the larger pieces of furniture like Mattresses, couches etc. directly to the individual Bulk Waste Room allocated on the Ground floor of the building.
- On the collection day, property management will take the bulk waste items to the loading bay for collection after making proper arrangements with the Region of Peel.

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REGION OF PEEL COLLECTION REQUIREMENT

Waste Loading Area:

- Minimum dimensions required for a Waste loading space and staging area:
 - 7.5 m Vertical Clearance, unencumbered i.e., sprinklers, ducts, support beams etc.
 - Slope grade: +/-2%
- Loading Area shall be constructed of 8" (0.2m) thick reinforced concrete.
- The design of the staging area should not require the jockeying of containers by the driver. If jockeying of containers is necessary, a custodial staff person must be available to maneuver the containers for the driver. The city does not allow the driver to leave the collection vehicle.
- If the loading area is enclosed, it shall be adequately ventilated. Fresh air intakes shall not be in or near any loading area.

Access:

- The access route and loading area must be designed in such a way as to allow a collection vehicle to enter the site, collect the waste and exit without the need to back up onto a public street. A turnaround area allowing for a three-point turn of not more than one truck length or a drive through access route are acceptable options for accommodating this requirement. The approximate dimensions of the collection vehicle that must be accommodated are presented in the table below.
- Access driveways must be a minimum of 6 meters wide at the point of ingress/egress to the site with an unencumbered vertical clearance of 4.4 meters. Consideration should be made regarding width requirements for right or left hand turns that may be required on private property.
- Turning radii of 13 meters outside should be available throughout the access route.
- If the collection vehicle is required to drive onto or over a supported structure (such as an underground parking garage) the city must be provided with a letter certified by a Professional Engineer that the structure can safely support a fully loaded collection vehicle (35,000 kilograms) and conforms to the following:
 - Design Code - Ontario Building Code
 - Design Load - City bulk lift vehicle in addition Building Code requirements
 - Impact Factor - 5% for maximum vehicular speeds to 15 km/h and 30% for higher speeds

Other Waste Materials

Universal and Recyclable Hazardous Waste:

- E-Waste includes items such as print cartridges, computers, electronic cords, phones, etc. Recyclable hazardous waste includes such items as batteries, light bulbs, etc.
- Both residential and commercial tenants will utilize the same holding collections area for disposal. Drop area with different carts/bins depending on level of separation of the various waste types should be provided for depositing of this waste.
- Universal waste shall be stored in commercial waste rooms for all the commercial areas

Non-Recyclable Hazardous Waste:

- Non-recyclable hazardous waste includes materials such as paints, aerosol cans, chemicals, hazardous oils, medical waste, sharps (needles), etc.
- Non-flammable cabinets are required for holding the majority of the other hazardous waste types
- Both residential and commercial tenants will utilize the same holding collections area for disposal. Drop area with different carts/bins depending on level of separation of the various waste types should be provided for depositing of this waste.
- Hazardous waste shall be stored in commercial waste rooms for all the commercial areas

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Landscape Waste

There is no landscape waste associated with this development project as it is expected the Landscape Contractor will be responsible for removing their own materials from the site.



We welcome comment on the information contained above and will work closely with Sweeny&Co Architects, retained professionals, and the Region of Peel to ensure that appropriate waste handling facilities are incorporated.

If you have any questions, please do not hesitate to contact the writer.

Sincerely,

Amruta Kiran

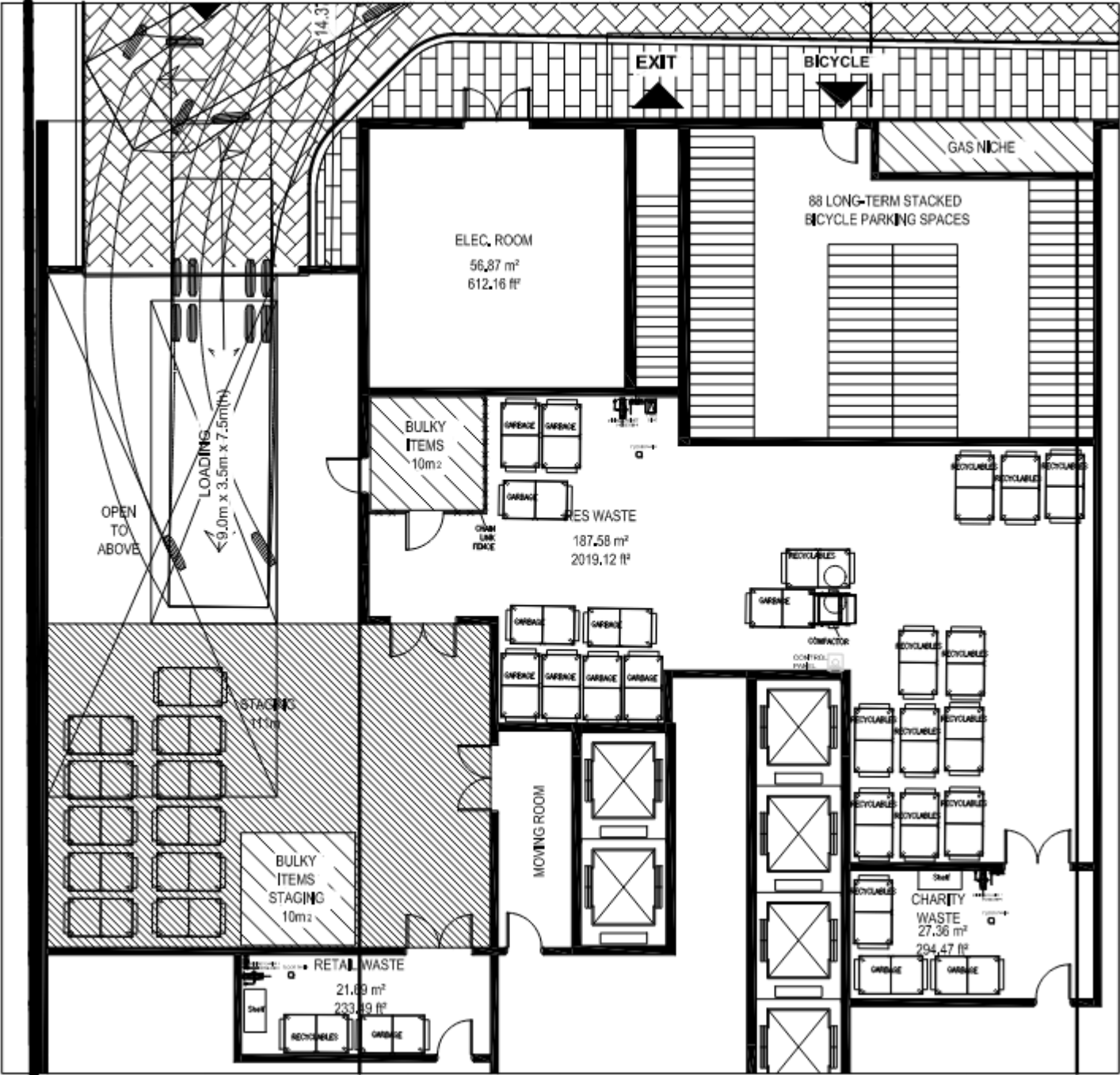
Amruta Kiran

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Appendix II – Residential Garbage and Recycling Room – Ground Floor Level



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Appendix III – Truck Turning Diagram

