

# NC State University Design and Construction Guidelines

## Division 00 - Waste Materials Management and Zero Waste Workplace

### 1.0 Purpose

- A. To provide requirements for the Designer and Contractor to follow related to space planning for building waste management systems and Zero Waste Workplace for recycling, compost, landfill, and other waste generated in the facility.
- B. In the design phase, WRR and designers will coordinate with building occupants and other building stakeholders to develop a waste management plan based on expected programming and building use.

### 1.1 General Requirements Interior

- A. In the design phase, coordinate meetings with WRR, building/space stakeholders, and designers to develop waste management plans and identify service requirements. Note; multiple meetings may be required.
- B. Include space allocation for interior collection locations and dumpsters on plans at DD and CD phases of design. Container type and size will be finalized by the CD phase of design.
- C. The interior and exterior container types and placements will be approved and ordered by WRR. The purchase of containers for each project shall be funded by the following sources; the project, state maintenance and operating allocation, departmental budgets.
- D. The containers will be installed after construction and site amenities such as furniture have been installed. WRR is responsible for installation of all containers identified and purchased through design and construction.
- E. Interior Centralized Collection Locations shall be easily accessible to users, located in dedicated spaces on each floor of the building.
  - 1. The standard configuration of containers is three (3) units; recycling, compost, and landfill waste. All units will have an educational sign frame and color coded to university material streams. If the collection location requires mobility, a trolley shall be incorporated.
  - 2. Containers shall be centrally located in hallways to support building gathering spaces (rather than inside these spaces):
    - a) Classroom
    - b) Study
    - c) Conference

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3. Containers shall be located within or adjacent to departmental spaces:
    - a) Break Room
    - b) Work Room (Copy/Print/Mail)
    - c) Research Labs
    - d) Teaching Labs/ Studios
    - e) Computer Labs (Open, Teaching, or Research)
    - f) Student Project Space/ Maker Space
    - g) Open Office Area (Assigned desks)
    - h) Open Office Area (Unassigned/ Hotelling desks)
  4. Containers shall be located within and in highly visible locations for amenity spaces (such as):
    - a) Food Service and Dining
    - b) Restrooms
    - c) Vending Machines
    - d) Venues for Events
    - e) Meeting/Training Centers and Lounges
  5. Residence hall interior receptacles will require special planning to accommodate the needs of each type of residence.
- F. Deskside Waste and Recycling containers will only be distributed to assigned desks in open or private offices. The containers are generally placed under or beside the desk.
1. The standard configuration is (3) units; Deskside Recycling and Deskside Mini Landfill Waste and Mini Compost Containers.
- G. Restroom or Personal Health waste and compost containers will be located near the paper towel dispenser or near the doorway.
1. The standard configuration is (2) units; Tier 1 XL32G/30" Compost and Tier 1 23G/30" Waste Containers
  2. Renovated spaces or single occupancy restrooms may require an exception for smaller containers. Consult with WRR for options.
  3. Sanitary product disposal containers, infant changing stations, soap dispensers, toilet paper and paper towel dispensers are addressed in the guidelines and preferred manufacture list provided by University Housekeeping.
- H. Handwashing Stations or Standalone Sinks located in labs and other work spaces will have containers located beside or adjacent to them.
1. The standard configuration is (2) units; Tier 1 XL32G/30" Compost and Tier 1 23G/30" Waste Containers.

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- I. Approved Interior Collection Container Specifications:
  1. Tier 1 are the standard containers on campus. The products are easily customized for educational graphics with sign frames, color coded, and sized appropriately for each collection site.
  2. Tier 2 containers are higher end finishes and must be approved by WRR. This container type is reserved for spaces of public engagement. The containers will be labeled, color coded, and sized appropriately for each collection site.

Finish Level	Description	H/W/D Inches	Front Clearance Inches	Height Clearance Inches	Capacity Gallons
Tier 1	<a href="#">23G/30" Waste Watcher Series</a>	30/12/12	36	42	23
Tier 1	<a href="#">XL32G/30" Waste Watcher XL</a>	30/15/22	36	42	32
Tier 1	16G/24"	24/11/20	36	24	16
Tier 1	XL24G/24"	24/16/22	36	24	24
Tier 1	Sign Frame	10/12/1	-	-	-
Tier 1	<a href="#">Trolley</a>	-	-	48	-
Tier 1	<a href="#">Deskside Recycling</a>	12/12/8	-	12	3.5
Tier 1	<a href="#">Deskside Mini Waste &amp; Compost</a>	6.5/7.5/5.5	-	12	.75
Tier 2	<a href="#">Configure15</a>	40/20/15	36	49	15
Tier 2	<a href="#">Configure23</a>	40/20/20	36	49	23
Tier 2	Configure Sign	9/15/1	-	9	-
Tier 2	<a href="#">Max-R Cabinet</a>	37/68/24	36	55	45
Tier 2	Max R Sign	18/68/1	-	18	-

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### 2.1 General Requirements - Specialized Waste

- A. Waste materials are unique to each building and may vary by department. Identifying, handling, and storage of these materials must be considered and included in design plans.
  - 1. Examples include; autoclave waste, pallets, barrels, drums, scrap metal or wood, bulk items, small electronics, plastic film, etc...
  - 2. Complete other waste materials checklist during DD to identify space needs for these types of materials.

### 2.2 General Requirements - Exterior

- A. Walkway Containers and Ash Urns
  - 1. Waste and recycling receptacles shall comply with NC State's Preferred Manufacturer List and be paired. The recycling container will have an enclosed dome bonnet and be labeled for cans and bottles recycling.
  - 2. Where needed, compost receptacles shall be placed with the other receptacles.
  - 3. Where needed, ash urns will be incorporated on the waste receptacle lid. Standalone ash urns may be used in designated smoking areas or where users congregate around the building exterior space.
  - 4. Placement will be prioritized around outdoor gathering spaces and dining areas. If an ash urn is included, the distance placement shall follow university guidelines for distance from building entrances and air handlers.
- B. Dumpster Service Locations
  - 1. Dedicated locations for dumpster service will be included in all designs.
  - 2. Existing dumpster locations that will be impacted by the project will be included in all designs.
  - 3. The location, size and capacity must be adequately designed to manage the anticipated volume of materials generated and not create undue accessibility issues for users, collections staff or equipment.
  - 4. Locations may be shared between multiple buildings if accessibility and capacity is approved in design review by WRR.
  - 5. Minimum Site Accommodations for Dumpsters and Containers
    - a) One mixed recycling dumpster
    - b) One compost dumpster
    - c) One waste to landfill dumpster
    - d) One autoclave dumpster (if the building has autoclave capability).
    - e) Roll carts for special waste streams.
    - f) Additional dumpsters or collection space identified in design review for special waste streams.
  - 6. Sites shall either be freestanding, located within a building service area, in an adjacent parking lot, or part of a loading dock.

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7. Dumpster Pad and Screening Enclosure - Freestanding
  - a) The site shall be screened from view and landscaped.
  - b) Minimum height of screening is 6'.
  - c) Screening material shall be brick masonry or blend with nearby buildings and shall cover the enclosure's interior as well as exterior elevations.
  - d) Access shall be clear and open. No enclosure gates, unless approved in design review by WRR.
  - e) One steel post (bollard) shall be placed to protect the wall at either side of the vehicle entrance.
  - f) One steel post (bollard) shall be centered behind each dumpster.
  - g) Piping, equipment, utility vaults, access hatches, grease pit or traps shall not be installed inside the enclosure.
  - h) Pad and sub-grade preparation shall support NC State standard trucks.
  - i) Pad shall be sloped to drain away from the enclosure.
  - j) Pad dimensions shall be sized to support all required dumpsters and the front 120" of the truck, or front tires with forks extended.
8. Dumpster Pad - Loading Dock
  - a) Access shall be clear and open. No enclosure gates, unless approved in design review by WRR.
  - b) Piping, equipment, utility vaults, access hatches, grease pit or traps shall not be installed under the dumpsters.
  - c) Pad and sub-grade preparation shall support NC State standard trucks.
  - d) Pad shall be sloped to drain away from the dumpster.
  - e) Pad dimensions shall be sized to support all required dumpsters and the front 120" of the truck, or front tires with forks extended.
  - f) Loading dock height shall be standard 48".
  - g) Access to the rear of dumpsters (on loading dock) must be clear for purposes of loading materials.
9. Access Drive and Location Placement for Dumpsters
  - a) Access drives shall be capable of supporting the weight of NC State standard trucks.
  - b) Position dumpsters and pad such that the truck can approach the containers head on to service.
  - c) Access drive grades shall not exceed 6%.
  - d) Dumpsters shall not be placed under any hanging utility wires or building structures.
  - e) Dumpsters shall be placed at a minimum of at least 200' away from residential buildings.

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- f) Dumpster placement shall not require the truck to back into any public street.
- g) Dumpster placement shall not require the truck to back up for a distance of more than 80'.

### 10. Dumpster and Container Specifications

Description	H/W/D Inches	Loading Clearance	Height Clearance	Capacity
<a href="#">Dumpster 8cyd</a>	83/82/66	36/48	264"	8cyd
<a href="#">Dumpster 4cyd</a>	53/82/58	36/48	264"	4cyd
<a href="#">Rollcart 95 Gallon</a>		36/24	NA	95 gallon
<a href="#">Compactor Vertical</a>	117/100/84	36/48	264"	8cyd
<a href="#">Compactor Horizontal</a>	Varies	TBD	TBD	TBD
<a href="#">Walkway Containers</a>	28/28/52	36/24	NA	36 gallon
<a href="#">Smoker Urn</a>	38/15/12	36/24	NA	4 gallon

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11. NC State Standard Collection Truck Specifications - Front-End-Loader (FEL) used to empty dumpsters. Reference [FEL1](#), [FEL2](#), [FEL3](#), [FEL4](#)

Description	Specification
Chassis Usable CT	160"
Chassis Wheel Base	185"
Chassis GVWR	54,000 lbs
Chassis Front GVWR	20,000 lbs
Chassis Rear GVWR	34,000 lbs
Chassis Platform	227"
Chassis Turning Radius	552"
Chassis Turning Diameter	1164"
Chassis Track	79"
Body Capacity / Weight	20 cyd / 18,000lbs
Body Hopper Capacity	12 cyd
Body Overall Length	364" (Length of Lift)
Body Overall Width	96"
Body Overall Height	156" (Arms Down)
Body Overall Height	204" (Arms Up)
Body and Dumpster Overall Height	264" (Arms Up with 8 cyd Dumpster)
Body and Dumpster Overall Height at Length of Lift	264" (H) at 240"- 264" (LL)

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### 2.3 Resources

Description	Link
Deskside Container	<a href="#">Recycling &amp; Waste Basket Series</a>
Tier 1 Container	<a href="#">Waste-Watcher-Series Product-Data-Sheet.pdf</a>
Tier 2 Container	<a href="#">Configure™   Rubbermaid Commercial Products</a> <a href="https://assets.rcp.structpim.com/?id=8623">https://assets.rcp.structpim.com/?id=8623</a>
Tier 2 Container	<a href="#">MAX-R Cabinet 2019.pdf</a>  <a href="#">Oxford Collection</a>
Walkway Container	<a href="#">Petersen MFG</a>
Smoker Urn	<a href="#">Cigarette Receptacle</a>
Events	<a href="#">Clearstream Zero Waste Stations</a>
Dumpster	<a href="#">FRONT END LOAD CONTAINERS</a>
Vertical Compactor	<a href="#">Vert-I-Pack™ (VIP)</a>
FEL Truck and Body	<a href="#">Front Load Refuse Truck Specifications</a> <a href="#">Front Load Refuse Truck Type</a>
NC State - Waste Reduction and Recycling	<a href="#">Waste Reduction &amp; Recycling</a>
Waste Materials Evaluation Checklist	<a href="#">Evaluation Checklist</a>