

Design Guidelines for Recycling, Organics and Solid Waste Services

Commercial, Multi-Family Residential, Mixed-Use Projects



Sunnyvale

Adopted on 4.26.24

Ramana Chinnakotla

Ramana Chinnakotla, Director
Environmental Services Department

Trudi Ryan

Trudi Ryan, Director
Community Development Department

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INTRODUCTION

The Recycling, Organics and Garbage Management Standards provides developers details to design a plan that manages recycling and garbage disposal, storage and collection. Included are step by step instructions on how to create a Recycling, Organics and Garbage Management Plan, estimate material generation (recyclables and garbage) and illustrate how containers and materials will be stored and collected on site plans. Material generation can be calculated using [the online form](#) and will provide relevant information for enclosure design, available container sizes for each material type, dimensions for containers, and pickup frequency options. These standards are based on state legislation, the Sunnyvale Municipal Code (SMC), City collection programs and staff expertise.

In keeping with the City's Zero Waste Policy and state law, the City requires business owners and residential property managers to maximize recycling efforts for paper, glass, metal, plastics, cardboard, yard trimmings and food scraps. More recycling can help lower garbage service costs and keep valuable resources out of the landfill. *Less garbage produces less greenhouse gases and creates a healthier environment!*

CREATING A RECYCLING, ORGANICS AND GARBAGE MANAGEMENT PLAN

As part of the development design and review process, a Recycling, Organics and Garbage Management Plan (the Plan) shall be submitted to the designated planner with the permit application. During the Planning or Building review phase, the applicant will resubmit the Plan to reflect any changes in the project. All references to recycling, organics and garbage enclosure includes enclosures, trash rooms, carts or bins, or where materials are disposed, stored and collected.

A. Projects that Require a Recycling, Organics and Garbage Management Plan

- New non-residential structures (Appendix N: SMC 19.38.030 (b))
- Additions to non-residential sites which equals or exceeds “30% of the existing floor area of a building or buildings on a site” (Appendix N: SMC 19.38.030 (e)(1)(A))
- Change of building use and:
 - The site does not have existing material enclosures/storage areas (Appendix N: SMC 19.38.030 (a))
 - Existing facilities are inadequate for proposed use (Appendix N: SMC 19.38.030 (a))
 - Modifications to an existing building that require other building upgrades to meet current code(s) (Appendix N: SMC 19.38.030 (e)(1)(B))
- Residential structures with four or more units (Appendix N: SMC 19.38.030 (d)).

Note: Residential structures with three or fewer units must use single family cart service (Appendix N: SMC 19.38.030 (c)).

B. What to Include in the Plan

The plan must have two parts: a **narrative** detailing how generated materials will be managed and the **site plan** drawings. See below for what to include in the narrative and site plans.

1. Narrative

- Material generation estimates based on project type, use and size or number of residential units
- The number and size of material containers (bins/carts/compactors) per material type that will be stored in the enclosure
- Weekly collection service frequency to ensure all materials are removed at least once every seven days
- Where and how waste generators or custodial staff will dispose of materials
- How containers will be staged for collection

Note: A narrative template is available in Appendix M.

2. Site Plans

- Illustrate number and location of enclosures
- Show dimensions of usable enclosure floor space and elevations
- Label enclosure elements and bins or carts for each material type
- Provide container and enclosure dimensions to scale
- Illustrate collection truck pathways, vertical and horizontal clearances and staging areas

Note: Sample site plans can be found in Appendix H – K.

CHECKLIST

This checklist is a basic outline of required design elements to guide designers. Applicants are not required to submit the checklist. Details are provided throughout the guidelines.

NARRATIVE

- Project use details (residential, commercial, industrial, mixed-use, etc.)
- Material generation estimates
- Containers (bins, carts, compactors)
- Collection frequency
- Enclosure(s) or waste room(s) design elements
- Paths to service areas for trucks and disposal locations for generators
- Dimensioned collection (staging) areas
- ADA compliance (where applicable)
- How material will be moved to collection/staging areas

SITE PLANS

- Project description (use)
- Overall site plan
- Enclosure
 - Number and location of enclosures
 - Design elements: building materials, wheel stops, gates, cane bolts /sleeves
 - Enclosure internal (usable floor space) /external dimensions
 - Containers, dimensioned to scale in enclosure
 - Internal clearances between bins, carts and ceiling
 - Located within one hundred fifty feet by path of travel from any dwelling unit or commercial business
 - Path of travel for containers between enclosure and staging area
 - Roofing, lighting, fire sprinklers, and odor control/air circulation
 - ADA compliance (pedestrian door, 5 ft. diameter clearance)
 - Flooring (maximum 2% slope)
- Truck Access
 - Dimensioned paths (ingress/egress)
 - Operational and travel clearances (See Step 3)
 - Stress pad
 - Truck turning radii

If project generates high volume of materials (40+ cubic yards weekly)

- Compactor (See Step 4 and provide specifications for pre-approval)
- Chute designs (See Step 4, Chute Requirements)

C. Steps to Develop a Plan

STEP 1: Estimate material generation and determine service frequency

Enclosures must provide space capacity to store all containers for source-separated materials (garbage, recyclables, yard trimmings and food scraps). Containers must not be overfilled, and container lids must remain closed. The Material Generation Calculator tool and manual calculation instructions will assist in calculating waste estimates for each material, selecting containers and establishing service frequency.

Important considerations for cardboard and food scraps service:

- To qualify for cardboard service, each bin must be:
 - filled with ONLY clean, flattened cardboard
 - at least 2/3 full per service day
- Food scraps volumes should be reduced by half due to their self-compacting nature.

Note: Material calculations are only an estimate of the material amount generated. Collection costs are based on container size (in cubic yards or gallons) and service frequency.

Material Generation Calculator

To automatically calculate material volumes, container types, and service frequencies, download the [Material Generation Calculator tool](#) from the City's website* and follow these steps:

1. Select business type.
2. Input square footage or number of residential units.
3. Select containers and service frequencies based on calculated material estimates.

Manual Calculation

If you prefer to manually calculate material generation, refer to Appendix A for detailed instructions on how to calculate the total estimate volume of each material generated, determine the containers that will be used, and establish collection frequency. Services must be provided at least one day per week, and not more than three days per week (unless otherwise determined). Sample calculations are provided in Appendix A.

A list of available containers can be found in Appendix C and container dimensions are found in Appendix D. For detailed information about service frequency and container pickup requirements, see Appendix A.

* www.sunnyvale.ca.gov/home/showpublisheddocument/1532/637820848570870000

STEP 2: Design the enclosure(s)

The enclosure design is based on the number and size of containers, service frequency and below standards.

General Design Requirements

- Enclosure location must:
 - Be located on the most direct path from public roadways
 - Provide travel and operational clearances for collection trucks to service materials. (See Appendix G)
 - Provide a flat and level (no greater than 2% slope) surface from inside enclosure to stress pad.
 - Be within 150 ft. (path of travel) from furthest residential dwelling unit, commercial or industrial property exit door. The path of travel shall not include any portion of the public right-of-way. (Appendix N: SMC 19.38.030 (e)(1)(K))
 - Provide a container staging area where multiple containers can be accessed on the stress pad.
 - NOT be located in set-back areas, easements, or parking lots (Appendix N: SMC 19.38.030 (1)(D))

- Enclosure exterior must:
 - Provide lighting inside the enclosure. If enclosures are inside a building, motion-activated lighting must be installed.
 - Provide four walls at a minimum height of six feet to ensure containers are hidden from public view. (Appendix N: SMC 19.38.030 (1)(C))
 - Minimum ceiling height is 9 feet 2 inches to allow space for container lids to open.
 - Must complement the building color if a commercial property. Must be constructed with wood or masonry and complement the building (Appendix N: SMC 19.38.030 (2)(A) & (3)(A))
 - Provide a level and smooth transition from inside the enclosure to the stress pad. Must NOT install thresholds or truncated domes.
 - Stress pads must be:
 - A minimum of 10 feet by 20 feet to support the weight of truck during operation
 - Comprised of 5-inch aggregate base (Class II compacted) with a 6-inch Portland cement overlay (Appendix N: SMC 19.38.030 (1)(J))
 - Screen waste containers from public view
 - Provide roofing or vertical screening if containers can be seen from upper floors or public roadways. Staging areas must be screened from public view.
 - Vertical screening material can be foliage, walls or trellis structures.
 - Gate(s)
 - Minimum 10 ft. wide
 - Comprised of solid and unperforated steel or aluminum (Appendix N: SMC 19.38.030 (3)(B))
 - Ability to rotate to 150 degrees
 - Install cane bolts on each gate.
 - Install cane bolt sleeves to anchor gates in closed and open to 150 degrees.
 - Provide pedestrian door and accessible routes that comply with ADA requirements for residential projects.

- Enclosure Interior:
 - Lighting
 - Provide lighting inside enclosures.
 - Provide motion-activated lighting inside enclosure if inside the building.
 - Sprinkler system
 - Required for trash rooms inside building
 - Required if enclosure is within 5 feet of building
 - Or as otherwise required by applicable fire and building codes
 - Odor control or odor neutralizers required if enclosure is inside building.
 - Odor control in each chute disposal room
 - Wheel stops to protect walls and containers
 - Pour concrete 12 inches from internal enclosure walls and 5 inches high.
 - Locate on all enclosure walls except the gate wall
 - Bollards, parking wheel stops, and small metal L-irons are NOT acceptable.
 - Container layout
 - Illustrate containers to scale in enclosure (see Appendix E for container dimensions)
 - Clearance between containers
 - Bins
 - 1-foot space between bins side to side
 - 4-foot space in front of bins
 - Carts
 - 6-inch space between carts side to side
 - 4-foot space in front of carts
 - Tallow/cooking oil bins must NOT be located within enclosures. Provide separate enclosure, or secondary oil containment system for inside buildings. Secondary oil containment systems are double containers with the grease inside one container and a second box that houses the grease container.

Shared Enclosures and Containers

Commercial businesses may share an enclosure and containers if all generators sign a Use Agreement. Use Agreements (see Appendix L) must be signed by each tenant, the property owner or manager accepting shared responsibility for maintenance, proper disposal of materials and contamination. All signers on a Use Agreement accept equal responsibility for maintenance, proper disposal of materials and contamination. Use Agreements must be managed and enforced by property managers and owners (Appendix L) and submitted to the city's solid waste specialist every three years or when business tenants change.

Townhomes must either use shared enclosures and containers or subscribe to single-family cart services (Appendix N: SMC 19.38.030 (d)). Townhomes qualify for single-family cart services if each unit has a garage or side yard to shield containers from public view (SMC 19.38.030(f)(2)). In addition, truck pathways must meet operational and travel clearance requirements as detailed in Appendix G.

- Provide an additional 35 square feet inside garages for container storage, a total minimum of 435 square feet
- Roadways between townhomes shall provide a minimum 22-foot horizontal operational and 18-foot horizontal vertical operational clearance

STEP 3: Truck accessibility

Requirements for truck accessibility:

Truck Operations

- Materials are collected using front-load, side-load or roll-off trucks
 - Front-load trucks collect:
 - One, two, three, four and six cubic yard containers
 - One, two and three cubic yard compactors
 - Right side-load trucks collect:
 - 27, 35, 43, 64, 65, 95 and 96-gallon carts
 - Roll-off trucks collect:
 - Self-contained compactors
 - Debris bins

Note: If the driver must move containers more than 10 feet from enclosure for service, push-out fees apply.

Truck Clearances

- Truck paths must meet required vertical and horizontal travel clearances:
 - Minimum horizontal travel clearance: 16 ft.
 - Minimum vertical travel clearance: 15 ft. (Appendix N: SMC 19.38.030 (1)(I))
 - Truck width: 10 ft.
- Truck paths must meet required operational clearances:
 - Front-load Truck
 - Truck Length: 32.8 ft. (*note: add 6 ft. for extended lifting forks*)
 - Minimum vertical operational clearance: 27 ft.
 - Minimum approach (throat length) clearance: 50 ft.
 - Side-load Truck
 - Truck Length: 34.2 ft. (*note: add 6 ft. for extended lifting forks*)
 - Minimum vertical travel clearance: 16 ft.
 - Minimum vertical operational clearance: 18 ft.
 - Roll-off Truck
 - Truck Length: 34.8 ft.
 - Minimum vertical operational clearance: 30 ft.
 - Minimum approach (throat length) clearance: 75 ft.

Note: Truck dimensions are found in Appendix G.

Truck Paths

- For safety reasons, trucks must exit property moving forward and not back out onto public roadways to reduce the risk of traffic collisions.
- Show truck turning radius on site plan. (See Truck Turning Radii in Appendix F)
- Truck turnouts (hammerhead turns) are required onsite where driveways do not extend from street to street, where a road dead-ends or has an otherwise inaccessible access route longer than 50 ft.
- Trucks must not back up more than 50 ft.
- Trucks must not operate against traffic flow.
- Trucks shall be provided the most direct path to enclosures or staging areas.

STEP 4: Assess if an alternative design plan is needed

An alternative plan involving chutes, compactors, concierge services and/or containers stored inside a building with service on the exterior stress pad may be proposed for projects that generate 40 cubic yards or more of waste per week, are 3 stories and above (residential or office buildings), mixed-use (residential or office and retail), or lots without space for an enclosure outside of the building (service with limited space). Alternative plans must comply with the design requirements in Step 2 and 3, and the maximum three-day service limit. Applicants must provide alternative source documentation for material estimates if using formulas other than those provided in Appendix B.

Mixed-use Designs

Residential buildings with at-grade businesses must have separate residential and business trash rooms. Residential buildings higher than 3 stories must install chute systems from top to bottom floors for resident access.

Chute Requirements

Residential developments higher than 3 stories, with or without ground level business use, shall install chute rooms for resident access to dispose of recyclables, food scraps, cardboard and garbage. A separate chute or container must be provided for food scraps to comply with Senate Bill 1383.

- Chute Design:
 - Chutes must have manufacturer's built-in water cleaning system.
 - Proper chute sanitation and maintenance tasks must be performed daily.
 - Chutes shall conform to all equipment manufacturers' requirements.
 - Chutes shall be installed from top to bottom floors.
 - Chutes shall terminate no less than 12 inches above bins/carts.

- Chute disposal room(s)/vestibule(s) must:
 - Be located on each floor.
 - Be within 150 ft. of furthest unit (Appendix N: SMC 19.38.030 (e)(1)(K))
 - Provide ADA 5-foot diameter clearance.
 - Provide odor control and motion-activated lighting.
 - Provide disposal for all source-separated material streams (garbage, food scraps, cardboard, recyclable paper and recyclable containers)
 - Three chutes: one each for garbage, recyclable containers and recyclable paper with added space for one 35-gallon food scraps cart and cardboard containment.
 - Four chutes: one each for garbage, food scraps, recyclable containers and recyclable paper, with added space for cardboard containment.
 - For an alternative option not included above, submit a description in the narrative under the “Alternative Chute Room Option” for review.
 - Provide space, containment, and process for cardboard collection. Containment placement must not interfere with the ADA access requirement to chute doors.
 - Chute sizes must be:
 - Minimum of 24” diameter for garbage, recyclable paper and recyclable containers
 - 30-inch chute diameters commonly used for garbage
 - Minimum of 24” for food scraps (if not using in-room container)
 - Chute access doors must:
 - Be a minimum of 16-inch square with side panels to avoid user injury
 - Provide a locking mechanism.
 - Not block the entrance to the room
 - Be spaced far enough from room access door to NOT activate motion-activated chute doors

- Chute termination room(s) must:
 - Be sized to store all required bins and carts.
 - Adhere to the design standards in Step 2
 - Provide fire sprinklers, odor control and motion-activated lighting.
 - Provide space to store and rotate bins and carts under chutes.
 - Provide positive, mechanical air ventilation of at least six room volumes per hour, or as designed for specific use by registered engineer.
 - Provide fan switch at a convenient location near containers.
 - Include a master lock on chute access doors. Lock will be used when containers are removed for service.

Note: Sample site plans for chute disposal and termination rooms can be found in Appendix J and K

Compactor Use for 40+ Cubic Yards Material Generation

Projects with high-volume garbage generation (40+ cubic yards weekly) have the option to use front-load or roll-off garbage compactors. Customers can either purchase or lease compactors from compactor providers. Customers are solely responsible for owned or leased equipment maintenance. **Proposed self-contained or roll-off compactor specifications must be submitted to Specialty Solid Waste & Recycling to ensure truck compatibility prior to project approval and installation.** Contact Specialty at 408-565-9900 to learn more.

Compactor Considerations

- Onsite material management staff is responsible for staging front-load compactor bins for collection in drive-up/pick-up formation. Drivers are not permitted to manually move compactor bins.
- Compactors require weekly service.
 - Choose an appropriate compactor size to avoid paying for un-utilized space.
 - Separate recycling streams from garbage to reduce garbage volumes.
 - Compactors are not permitted to be used for recyclables without special permission from the Environmental Services Director and their appointee.
- Avoid over-compacting materials; materials must flow freely when emptying. Compactors that do not empty easily shall be returned to the customer to offload excess materials. Return trip fees apply.

Note: Food scraps are self-compacting; compactors shall not be used for food scraps disposal.

Front-load Compactors

- Front-load 2, 2.5 and 3 cubic yard compactors are serviced onsite.
- Compaction ratios:
 - Consult with compactor manufacturers for compaction ratios. Ratios vary depending on discarded material types and rarely meet advertised high compaction rates.
 - Horizontal 2 cubic yard compaction ratios range from 2:1 to 3:1 depending on materials.
 - Vertical 2 or 3 cubic yard compaction ratios range from 5:1 to 7:1 depending on materials.
 - Vertical compactors are often nine feet tall. Enclosure walls must be tall enough to screen compactors from public view.

Self-Contained/Roll-Off Compactors

Self-contained compactor capacities range from 10-40 cubic yards and are loaded onto roll-off trucks, taken to and emptied at the SMaRT Station®. Pre-approval for compactor units is required to ensure truck compatibility. Contact Specialty Solid Waste & Recycling for details about truck and compactor compatibility: 408-565-9900 or www.sswr.com.

Requirements for self-contained compactors:

- Roll-off trucks require a 75 ft. unobstructed throat length approach to back up to compactor.
- Truck turning radii must be shown to scale in compactor collection areas (See Appendix F)
- Vertical loading clearance requires 30 ft., horizontal operational and travel clearances require 16 ft. with four foot clearance on each side of the unit.
- Provide minimum 16 ft. vertical and 16 ft. horizontal door clearances where compactors are situated.
- Compactor rails must be installed under compactor to protect surfaces.
- Stress pad must be level and meet standard: 5-inch aggregate (Class II compacted), 6-inch Portland cement. (Appendix N: SMC 19.38.030 (1)(J))
- Compactors in or near tall buildings or residential areas require screening.

Note: If compactors are installed without pre-approval, the City may order removal of the compactors and replacement with truck-compatible equipment at the owner's expense. Occupants are responsible for maintenance and cleaning of privately-owned/leased equipment.

Concierge Service

The Plan and infrastructural design must ensure that the disposal, storage and collection of all materials can be handled without dependence upon a third-party service that collects and disposes of material generated by occupants of the project (sometimes referred to as a “concierge service”). If concierge services are proposed, the Plan must include a section explaining how materials will be managed with and without concierge service. For example, occupants must have a way to access enclosures to dispose of material when the concierge service is unavailable. Concierge service providers will be held responsible for complying with mandated source-separation programs and attend annual mandatory training provided by Environmental Services staff. The property owner is ultimately responsible for adhering to all State and City requirements for material storage and collection with or without a concierge service employed on site.

Service with limited space

Sites have the option to store containers inside a building and have containers serviced at a staging area if the following requirements are met:

- Property management staff is responsible for moving containers to and from the stress pad. Staff can use pallet jacks, similar equipment or move containers manually.
- Property management staff must move containers to the enclosure after service. Containers must not remain on the stress pad after service day.
- If property management staff fail to move containers to the stress pad before service day, the containers will not be serviced.
- The staging area must be within property limits, within 150 feet of the enclosure and meet truck requirements. (see Step 3: Truck accessibility)

STEP 5: Submit narrative and site plans

Submit the project narrative and site plans to the assigned City Planner. The Planner is the liaison between the Environmental Services Department (ESD) and applicant(s) during both the Planning and Building Plan Check phases.

The contractor will keep a copy of the approved Recycling, Organics and Garbage Management Plan with building plans and provide a copy to the onsite property management or leasing office upon occupancy.

Contact Information

Questions about the review process? To contact the City Planner, call the City’s Permit Center at 408-730-7580.

Questions about these Design Guidelines? Call the Solid Waste Specialist at 408-730-7749.

Questions on containers, trucks, and service frequency? Call Specialty Solid Waste & Recycling at 408-565-9900.

Questions about the City’s recycling programs? Call the City of Sunnyvale Recycling Program at 408-730-7262.

Questions about establishing waste collections services? Call the City Utilities at 408-730-7400.

APPENDICES

Appendix A: Manual Calculations

The following steps demonstrate how to calculate material generation estimates, choose the appropriate containers and determine service frequencies.

Step 1: Calculate the total material generation for the project

The total estimated material generation represents recyclables and garbage volumes that project occupants will generate. Select the appropriate project type listed in Appendix B: Material Generation and Container Estimates Table and use the associated formula for calculating the waste estimate. Business estimates are based on square footage; residential estimates are based on the number of dwelling units. Business types are defined in Appendix E: Project Type Definitions.

Step 2: Calculate the cubic yards of each material

To calculate the garbage, cardboard and food scraps generation estimate, use the total cubic yards calculated in step 1 and multiply it by the percentage of each material as shown in Appendix B: Material Generation and Container Estimates Table. Material volumes are always calculated in cubic yards.

Food scraps cubic yards = Total cubic yards X Food scraps % *

Cardboard cubic yards = Total cubic yards X Cardboard %

Garbage cubic yards = Total cubic yards X Garbage %

* Food scraps volumes should be reduced by half due to their self-compacting nature.

Step 3: Determine the container size for each material type and calculate frequency

Divide the cubic yards of each material by the cubic yard of the container size (see Appendix C: Available Containers). The result equals the number of days a container must be serviced each week. Material must be serviced at least once per week and no more than three times per week.

Materials must not be stored in containers longer than seven days (Appendix N: SMC 8.16.040). Applicant shall propose a collection service frequency that ensures all materials are removed weekly:

- No less than one day per week; and
- No more than three days per week (unless otherwise determined).

Note: Recycling carts for source-separated recyclable paper and containers are serviced once per week ONLY

Calculating Waste Estimates in Cubic Yards

Example 1: Office building with 89,000 square feet

Step 1: Multiply Office R&D building square footage by 0.0003 cubic yards

- 89,000 square feet X 0.0003 cubic yards = 26.7 cubic yards (round up to 27 cubic yards)

Step 2:

- Food scraps = 17% of 27 cubic yards
 - 27 cubic yards X 0.17 = 4.59 cubic yards (round down and divide by two to account for self-compaction)
 - *Divide 4 cubic yards by 2 = 2 cubic yards
- Cardboard** = 25% of 27 cubic yards
 - 27 cubic yards X 0.25 = 6.75 (7) cubic yards
- Garbage = 75% of 27 cubic yards
 - 27 cubic yards X 0.75 = 21 cubic yards

Step 3: There are multiple options of containers and service frequencies:

- 2 cubic yards of Food scraps = One 1 cubic yard bin serviced 2X per week, OR One 2 cubic yard bin serviced 1X per week
- 7 cubic yards of Cardboard = One 3 cubic yard bin serviced 2X per week, OR one 6 cubic yard cardboard bin (not recommended for residential use)
- 21 cubic yards of Garbage = Three 3 cubic yard bins serviced 3X per week and one 4 cubic yard bin 3X per week

Example 2: Multi-family property of 40 units

Step 1: Multiply the number of units by X 0.3 cubic yards

- 40 units X 0.3 cubic yards = 12 cubic yards

Step 2:

- Food scraps = 5% of 12 cubic yards
 - 12 cubic yards X 0.05 = 0.6 cubic yards /2 = 0.3 cubic yards
- Cardboard = 10% of 12 cubic yards
 - 12 cubic yards X 0.10 = 1.2 (1) cubic yards
- Garbage = 84% of 12 cubic yards
 - 12 cubic yards X 0.84 = 10.8 (11) cubic yards (Cardboard volume is added to garbage)
- Recycling*** 40 units/10 = 4 sets of two 96-gallon recycling carts (or 8 carts)

Step 3: There are multiple options of containers and service frequencies:

- 0.3 cubic yards of Food scraps = two 35-gallon food scraps carts serviced 1X per week OR one 35-gallon food scraps cart serviced 2X per week
- 1 cubic yards of Cardboard = Does not meet minimum quantity standard, add to garbage volume
- 13 cubic yards of Garbage = One 4 cubic yard bin serviced 3X per week
- 4 Paper and 4 Containers 96-gallon Recycling carts serviced 1X per week

* Recycling volumes in multi-family housing are generally low, therefore, it is best not to subtract any estimated volume from garbage estimate.

** Note: Cardboard service is only provided if generators meet quantity and quality standards: bins must be at least 2/3 full each service day; only clean/flattened cardboard is accepted.

*** Recyclable paper and recyclable containers are collected in 96-gallon recycling carts and serviced once per week only. Calculate one set of two carts per 10 units.

Appendix B: Material Generation

Project Type*	Calculate Cubic Yards per Sq. Ft. or # of Units	Food Scraps	Cardboard**	Garbage	For 40+ Cubic Yards Material Volumes
Retail	1 cubic yard per 1,000 sq. ft.	10%	50%	40%	Front-load or Roll-off Compactor
Full-service Restaurant	3 cubic yards per 1,000 sq. ft.	52%	25%	23%	Front-load Compactor
Fast Food Restaurant	8 cubic yards per 1,000 sq. ft.	33%	28%	39%	Front-load Compactor
Office / R&D	0.3 cubic yards per 1,000 sq. ft.	17%	25%	75%	Front-load or Roll-off Compactor
Industrial	0.7 cubic yards per 1,000 sq. ft.	17%	48%	35%	Front-load or Roll-off Compactor
Manufacturing	1.1 cubic yards per 1,000 sq. ft.	17%	48%	35%	Front-load or Roll-off Compactor
Multi-Family ***	Number of units X 0.3 ****	5%	10%	85%	Front-load or Roll-off Compactor for 45+ cubic yards

* Project type definitions can be found in Appendix E

** Must generate enough of clean, flattened cardboard to fill at least 2/3 of bin each service day to qualify

*** Add one set of two (2) 96-gallon carts per 10 units for paper and container recycling.

**** Multi-family waste estimates are based on number of units, not square footage.

Note: Maximum 3 service days per week (unless otherwise determined). Percentages may not always add up to 100% due to inconsistent recycling behavior.

Appendix C: Available Containers per Material Type

Review the list below for the appropriately sized container for each material type. Find the current container and service cost list [here](#). All materials collected in Sunnyside are source-separated. Garbage, cardboard*, food scraps, recyclable paper, recyclable containers, and yard trimmings** each have their own container.

Property Type	Material Type	Available Receptacles
Commercial	Garbage	<ul style="list-style-type: none"> • 35-, 65- or 95-gallon carts • 27-, 43- or 64-gallon split carts (garbage and food) • 1-, 2-, 3-, 4- and 6-cubic yard bins**** • 2-, 2.5- and 3-cubic yard frontload compactor bins • 12-, 15-, 16-, 20-, 25-, 30-, 35- and 40- cubic yard self-contained/roll-off compactors
	Cardboard***	<ul style="list-style-type: none"> • 3- or 6- cubic yard bins****
	Recycling	<ul style="list-style-type: none"> • One set of two 96-gallon carts or split carts
	Food scraps	<ul style="list-style-type: none"> • 35-gallon cart • 1- or 2-cubic yard bins
	Yard trimmings	<ul style="list-style-type: none"> • 96-gallon carts • 1- or 4-cubic yard bins
Residential (multi-family)	Garbage	<ul style="list-style-type: none"> • 43- or 64-gallon split carts (garbage and food) • 1-, 2-, 3-, 4- and 6-cubic yard bins**** • 2-, 2.5- and 3-cubic yard frontload compactor bins (not supplied by Specialty Solid Waste and Recycling) • 12-, 15-, 16-, 20-, 25-, 30-, 35- and 40- cubic yard self-contained roll-off compactor bins (not supplied by Specialty Solid Waste and Recycling)
	Cardboard***	<ul style="list-style-type: none"> • 3-cubic yard bins****
	Recycling	<ul style="list-style-type: none"> • One set of two 96-gallon carts • 65- or 95-gallon split cart
	Food scraps	<ul style="list-style-type: none"> • 35-gallon carts • 1-or 2-cubic yard bins
	Yard trimmings**	<ul style="list-style-type: none"> • 96-gallon cart • 1- or 4-cubic yard bins

* Specialty Solid Waste & Recycling does not collect cardboard bales. Contact the Solid Waste Specialist at 408-730-7749 to discuss baled cardboard collection.

** Yard trimmings are part of the mandated organics diversion included Senate Bill 1383. Because the volume of yard trimmings is highly variable for each project, contact the Solid Waste Specialist to discuss yard trimmings collection options.

*** Eligibility for cardboard service is based on meeting quantity and quality standards: bins must be at least 2/3 full each service day; only clean/flattened cardboard is accepted.

**** 6 cubic yard bins are not on wheels. If used, they must be placed in drive-up and pick-up truck accessible position.

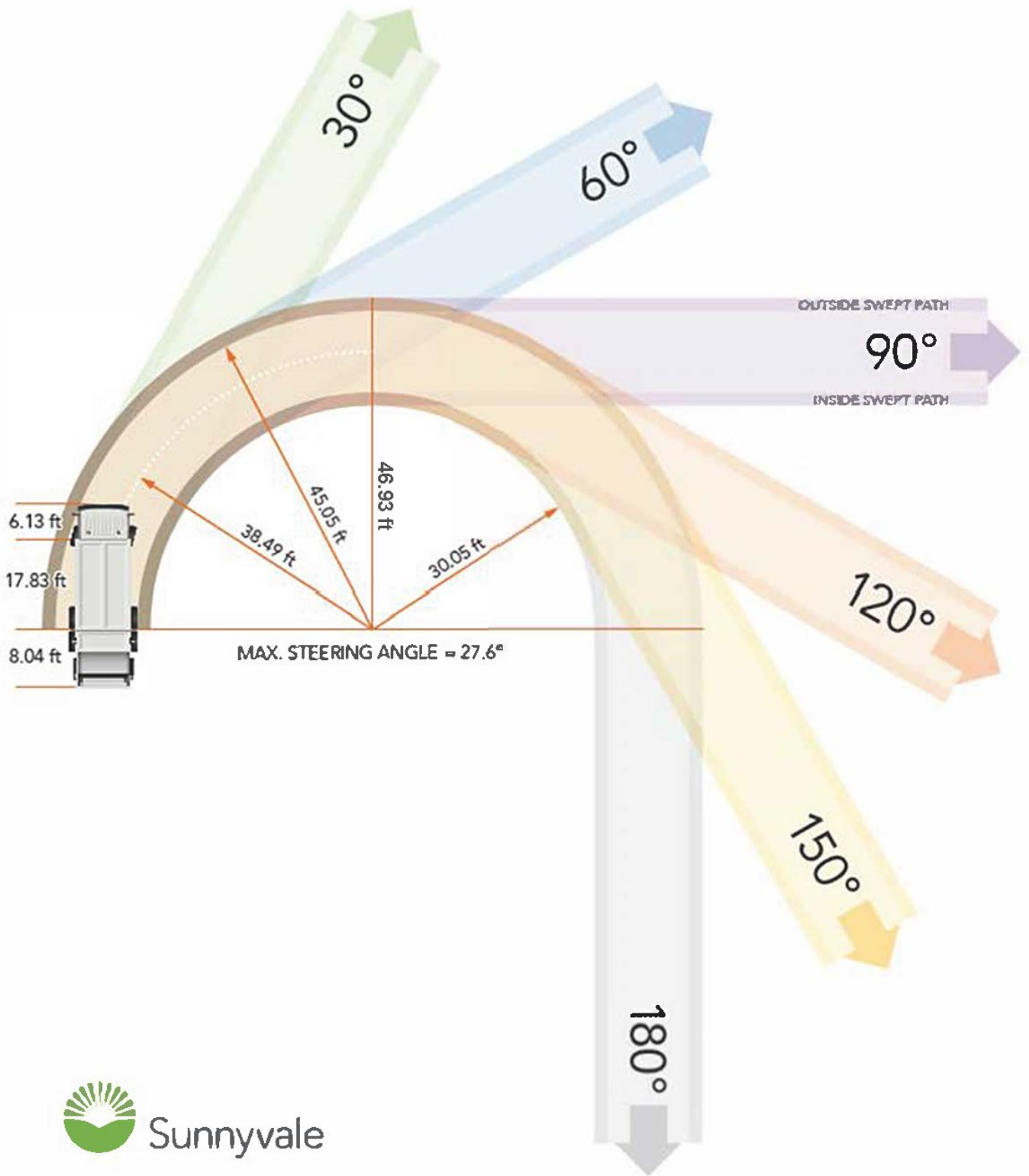
Appendix D: Cart and Bin Dimensions

Container	Width	Depth	Height	Cubic Yards	Container Availability per Material Stream
27-gallon split cart	44"	28"	42"	0.13	Garbage/food scraps (commercial and residential)
43-gallon split cart	44"	28"	42"	0.21	Garbage/food scraps (commercial and residential)
64-gallon split cart	26"	34"	45"	0.32	Garbage/food scraps (commercial and residential)
35-gallon cart	19.5"	23"	39"	0.17	Food scraps and garbage (commercial)
65-gallon cart	27"	28"	41"	0.32	Garbage (commercial)
95-gallon cart	28"	34"	45"	0.47	Garbage (commercial)
96-gallon cart	28"	34"	46"	0.48	Yard trimmings and paper/containers recycling (commercial and residential)
1 cubic yard bin	81"	32"	38"	1	Food scraps, yard trimmings and garbage (commercial)
2 cubic yard bin	81"	41"	52"	2	Food scraps and garbage (commercial)
3 cubic yard bin	81"	44"	61"	3	Garbage and cardboard (commercial and residential)
4 cubic yard bin	81"	54"	66"	4	Yard trimmings and garbage (commercial and residential)
6 cubic yard bin	81"	68"	73"	6	Cardboard and garbage (commercial)

Appendix E: Project Type Definitions

Business Type	Definition and Examples
Fast Food	Food with disposable packaging and wrappers and no table service, i.e. to-go, ice cream, smoothies, burgers, etc.
Full-Service Restaurant	Primarily sit down service, washable tableware, little to no packaging on table, bakeries that serve meals, bars that also serve food
Industrial	Facilities that generate a range of goods and services including testing labs.
Manufacturing	Facilities that engage in the mechanical, physical, or chemical transformation of materials into new products and/or assembling parts of manufactured products.
Multi-Family Residential	Four or more dwelling units sharing garbage and recycling services
Office / R&D	Primarily dealing with information and paperwork: real estate, accounting, government, counseling, investing, radio stations, design, travel, service organizations, foundations, non-profits, newspaper/publication offices, and professional services
Retail	Selling products with little to no service component: clothing, household goods, jewelry, cosmetics, appliances, equipment, department stores, electronics, furniture, sporting goods, auto parts, pet supplies, showrooms, lighting

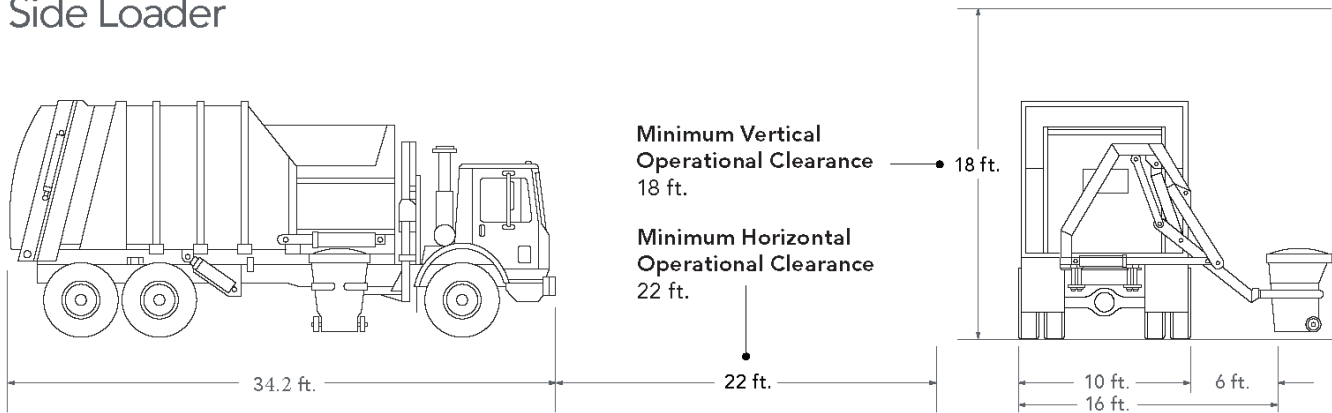
Appendix F: Truck Turning Radii



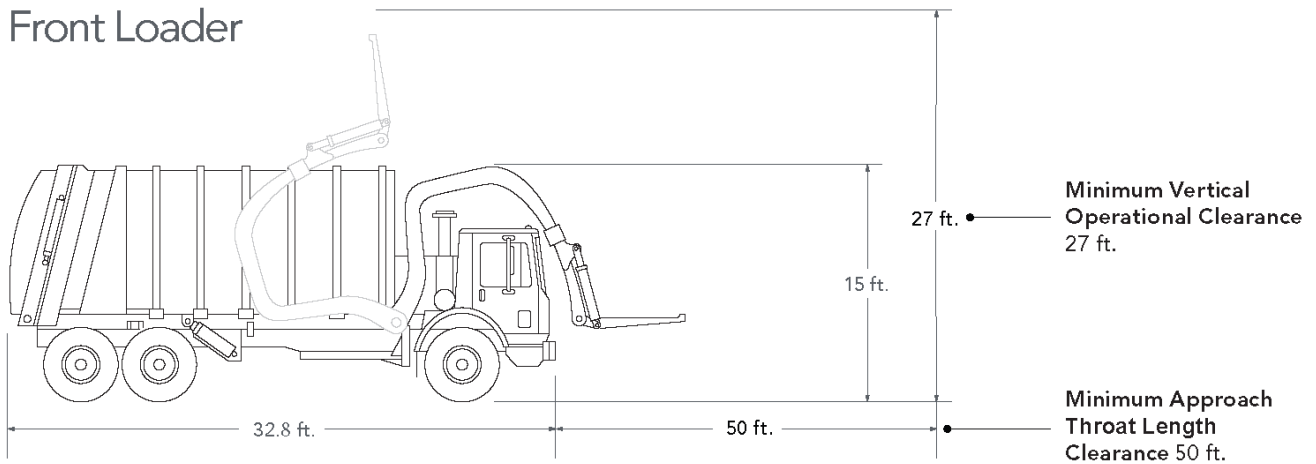
Appendix G: Truck Specifications

Note: All trucks require a 16 ft. minimum horizontal travel clearance and a 15 ft. minimum vertical travel clearance. All truck widths are 10 ft. including mirrors.

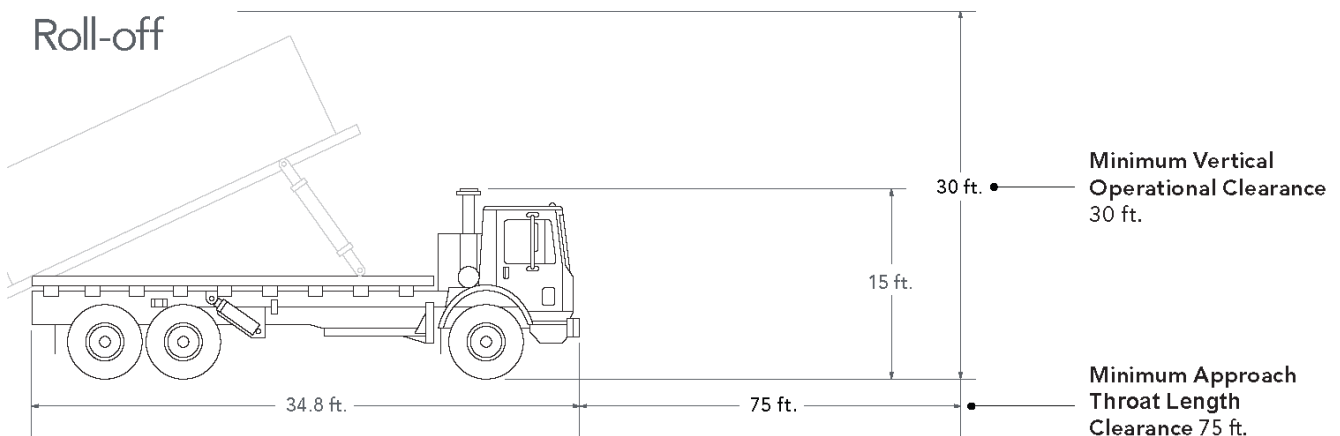
Side Loader



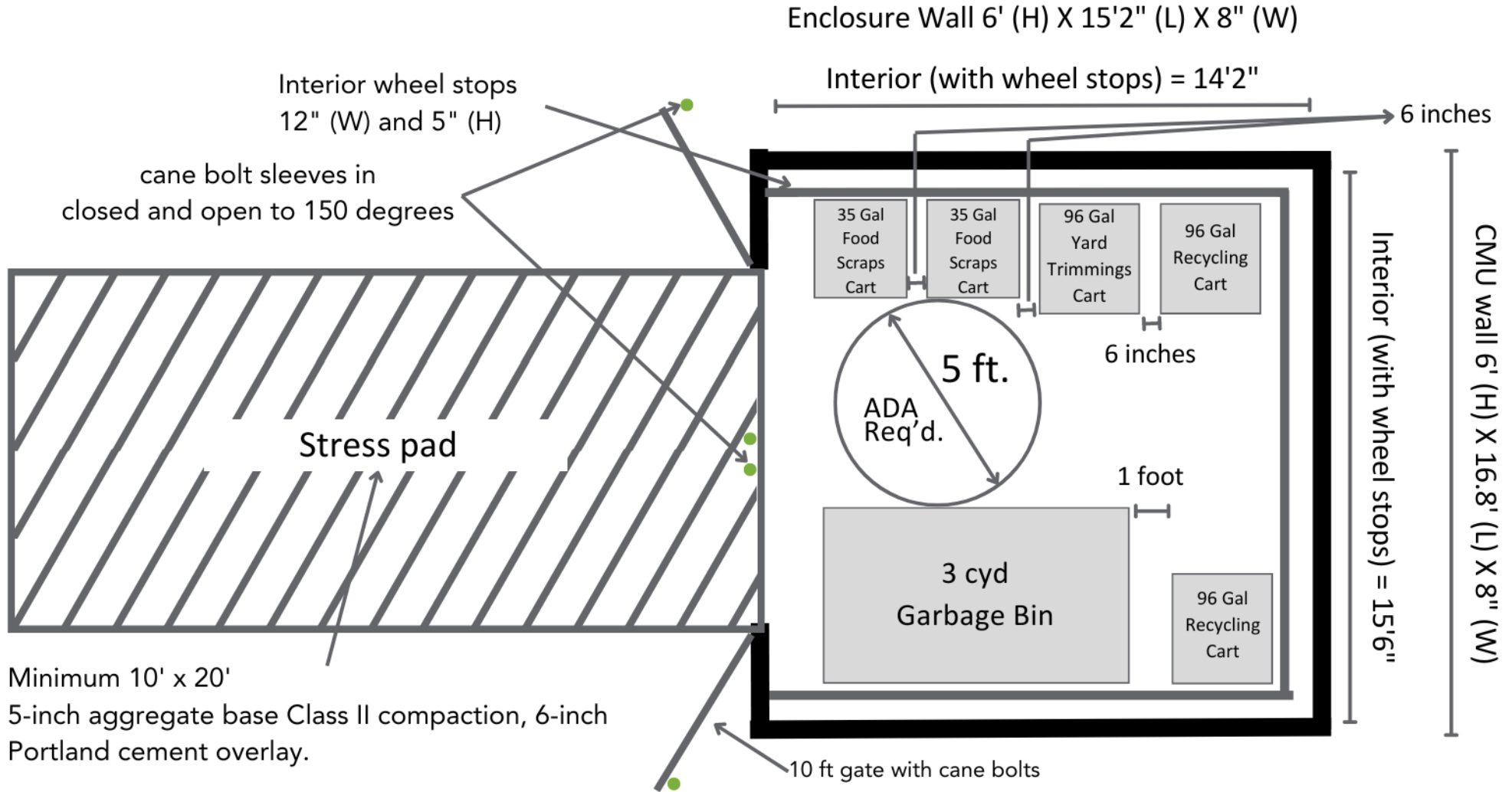
Front Loader



Roll-off

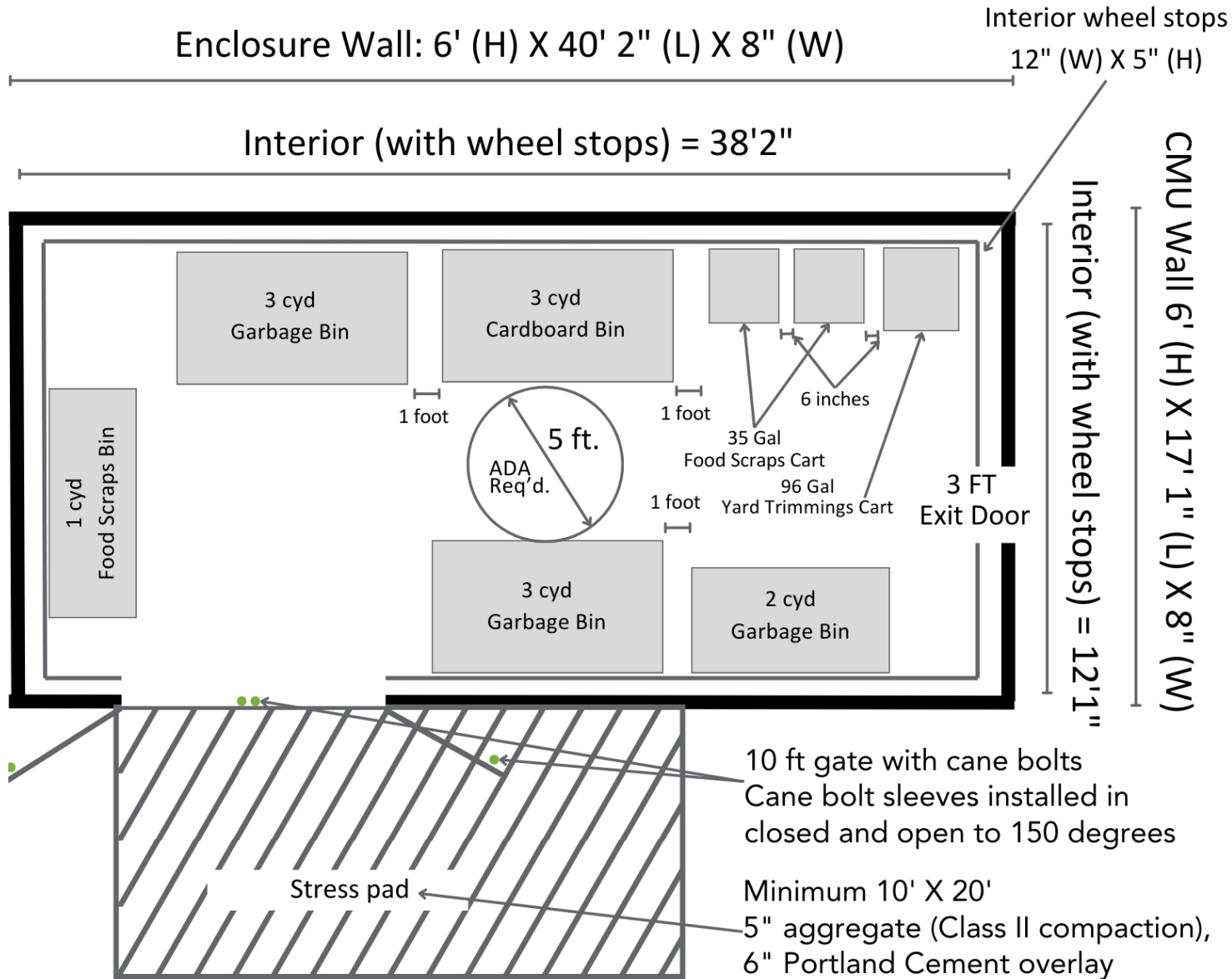


Appendix H: Example Outdoor Enclosure Serving Small Business or *Multi-family Residential Up to 30 Units



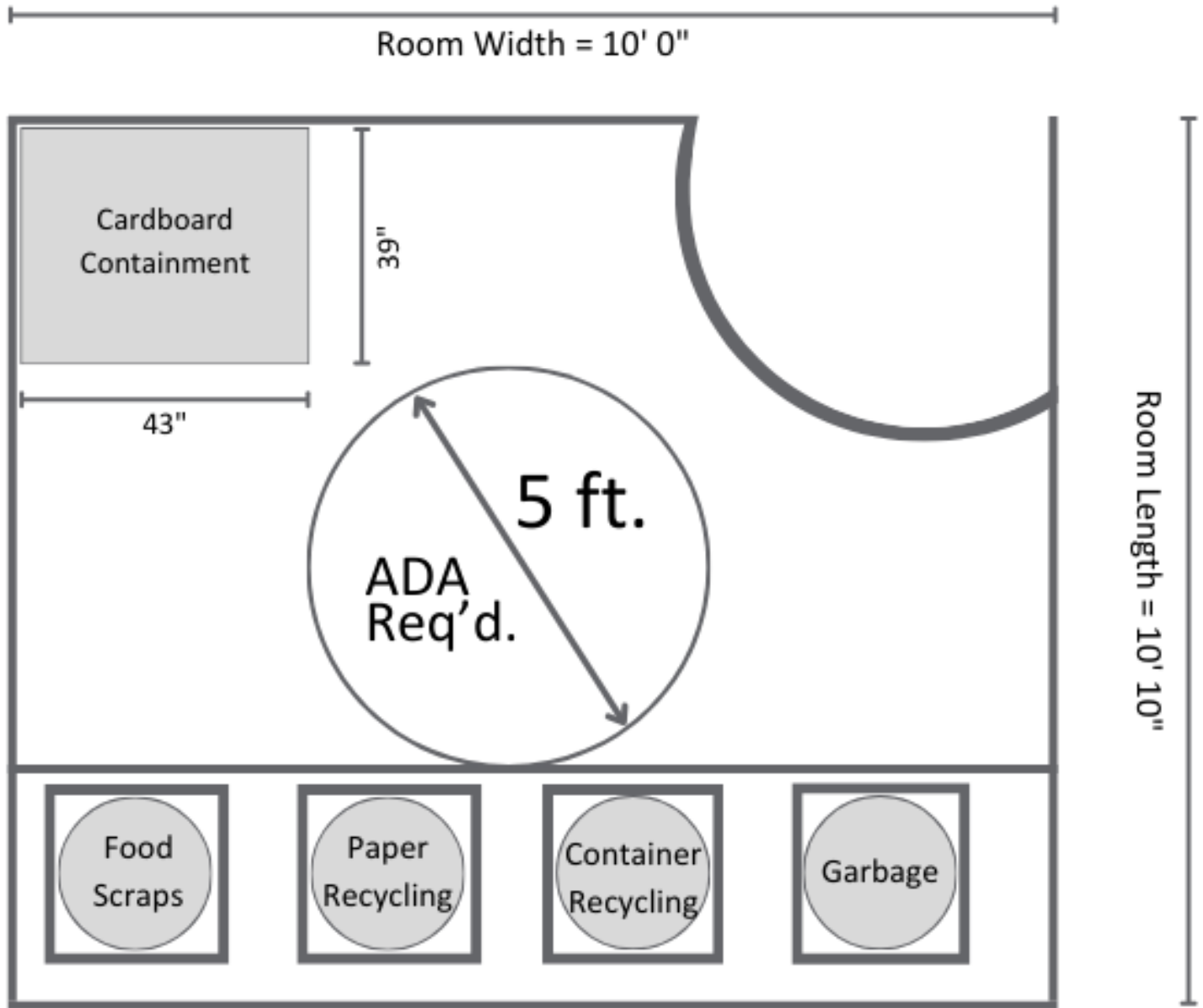
Note: Drawings not to scale. Drawings in Appendices H, I, J and K are only examples and will not be accepted as is in plan review.
 *Multi-family developments require a pedestrian door (not shown here).

Appendix I: Example High Volume Outdoor Enclosure Serving Multiple Businesses



Drawings not to scale. Drawings in Appendices H, I, J and K are only examples and will not be accepted as is in plan review.

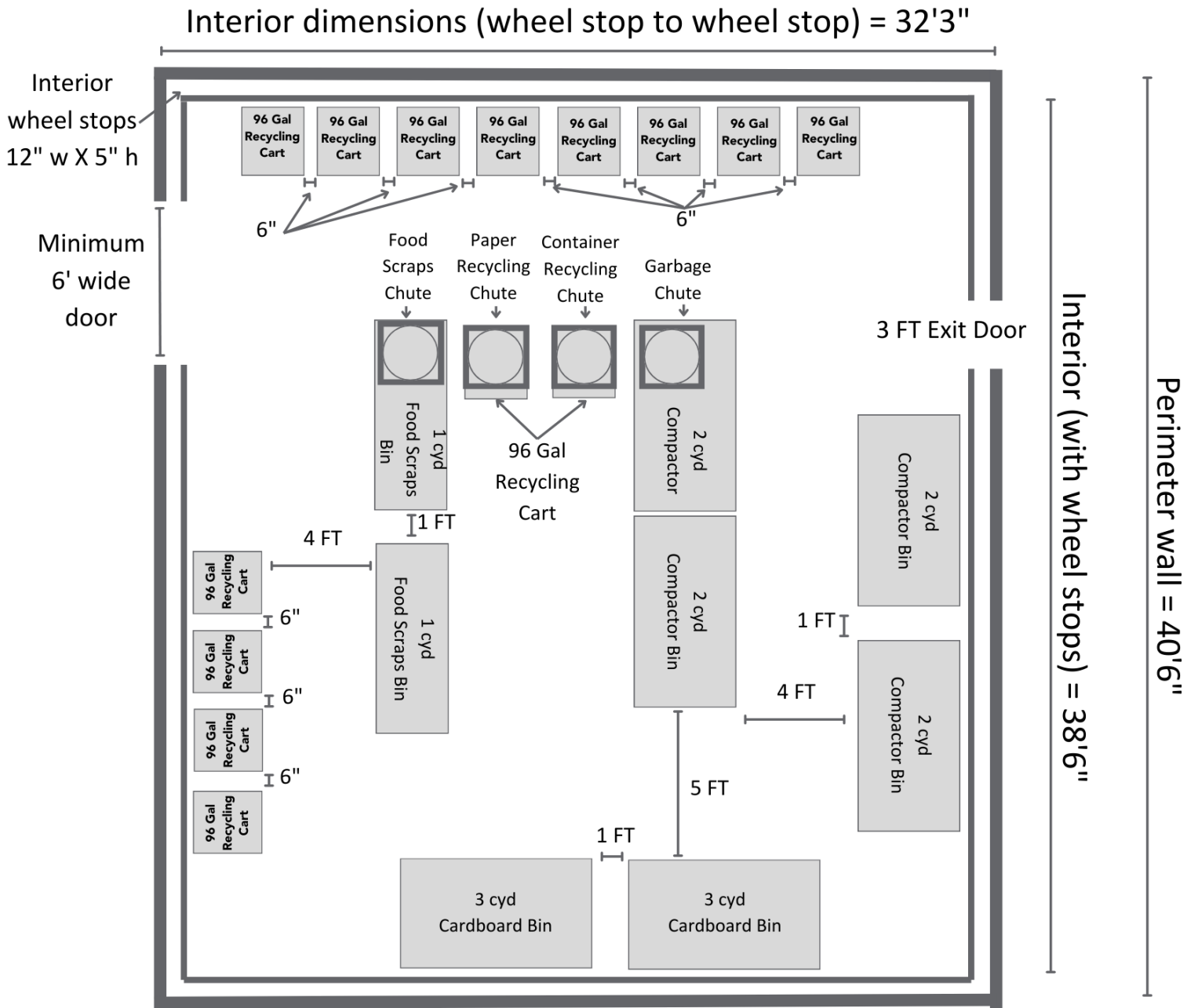
Appendix J: Example Chute Disposal Room(s) in Multi-Family Residential 3+ stories



Minimum 24-inch chute diameters. Locking mechanism on chute doors.

Drawings not to scale. Drawings in Appendices H, I, J and K are only examples and will not be accepted as is in plan review.

Appendix K: Example Chute Termination Room in Multi-Family Residential 3+ Stories



Drawings not to scale. Drawings in Appendices H, I, J and K are only examples and will not be accepted as is in plan review.

Appendix L: Use Agreement

Today's Date

Environmental Services Department
Solid Waste Division
City of Sunnyvale
456 W. Olive Ave.
Sunnyvale, CA 94089

Attn: Solid Waste Specialist

RE: Use Agreement/Occupant Contract for Shared Waste Collection Services at **Address of Primary Account Holder**

Dear ESD Solid Waste,

The undersigned party is a tenant who leases the commercial premises at the above referenced location and who will be utilizing a shared waste storage room and/or waste receptacles for waste disposal. The undersigned party hereby agrees to:

- Share and responsibly maintain the waste storage room;
- Share waste/recycling receptacles (bins/carts);
- Responsibly participate in source-separation of waste materials;
- Prevent contamination to shared waste receptacles by properly disposing of separated waste streams (garbage, food scraps, cardboard and recyclable materials) in appropriate carts/bins;
- Comply with City of Sunnyvale's collection protocols and state mandates as required by AB 314, AB 1826 and SB 1383; and
- Abide by the rules and regulations as set forth in "Exhibit A" attached to this agreement.

Please contact (**Name of Primary Account Holder, Phone Number and Email Address**) for any questions.

Sincerely,

Acknowledged and Agreed:

By: **Print Tenant Name**
Tenant Signature (attach image of signature):

Business Name: **Full Name**

Address: **Site Address**

RETAIL/COMMERCIAL WASTE MANAGEMENT PROTOCOLS

Property management reserves the right to take remedial action or assess fines for non-compliance with waste management protocols.

1. Moving Trash: To avoid leakage, litter, surface damage and vector issues, food scraps (wet materials) must be contained in clear plastic bags and transported in leak proof containers to the waste storage facility and disposed of in designated food scraps bins/carts.
2. Cleanup: Tenants are responsible for keeping common areas clean. Spills must be cleaned up immediately. Vent hood filters and floor mats must not be cleaned onsite nor in communal waste storage area(s).
3. Cooking Oil, Tallow and Grease Disposal: Tenants producing used cooking oil, tallow or grease must arrange and pay for tallow service collection. **Oil cannot be stored in waste storage enclosure/room nor be moved in open containers on the property.**
4. Bulky Items: Waste materials must be removed weekly per Sunnyvale Municipal Code 8.16.040 and must not be stored inside trash rooms more than seven (7) days. Large bulky items that do not fit inside or are improperly disposed of in designated materials waste receptacles must be removed from the property by the tenant at the tenant's expense.
5. Hazardous Materials: Tenants must arrange and pay for hazardous materials disposal. Improperly disposed hazardous materials in waste receptacles may result in assessed fines and penalties per City and County ordinances. Businesses are required to obtain an EPA ID number to dispose of hazardous materials. Learn more at Santa Clara County Hazardous Waste program (hhw.org) or call 800-207-8222 to schedule a drop-off appointment.

For information about food scraps disposal or proper disposal of any waste materials, contact the City of Sunnyvale Recycling Program at 408-730-7262, visit the City's website and search "How to Get Rid of Anything, or download the Sunnyvale Recycles app.

Appendix M: Narrative Template

Today's Date

Print Your Name

Project Number: Project Code Number

Project Address: Site Address

Provide Narrative with reference to specific Site Plan sheets.

1. Calculate waste generation estimates based on project use.
2. List the number, type and size of waste receptacles (bins/carts/compactors) per material type that will be stored in an enclosure or waste room.
3. Calculate the collection service frequency to ensure all materials are removed weekly.
4. Provide enclosure or staging locations that are easily accessible to collection drivers.
5. Describe how and where waste generators or custodial staff will dispose of waste.
6. Describe how/where waste containers in commercial, residential and/or mixed-use projects will be presented for collection.
7. If using chutes, select from one of the following options. For Alternative Chute Room Option, provide a full description of how waste will be managed with references and resources noted.
 - Three chutes: one each for garbage, recyclable paper, and recyclable containers, plus space for a 35-gallon food scraps cart and cardboard containment.
 - Four chutes: one each for garbage, recyclable paper, recyclable containers and food scraps, plus space for cardboard containment.
 - Alternative Chute Room Option: Provide a plan to manage waste disposal, storage and collections that complies with Guidelines. Provide resources for proposed plan and waste estimates.

Print Developer Name

Name of Company

Phone Number

Email Address

Signature (attach image of signature):

Appendix N: Key Municipal Codes

[Sunnyvale Municipal Code \(SMC\)](#) requirements that can be found on the City website.

- **SMC 19.38.030:** Discarded materials facilities and general requirements
- **SMC 903.2 :** #8 California Fire Code additions detailing sprinkler and trash termination room requirements
- **SMC 8.16.020 Definitions: (d.4), (m), (o.1 - .2) and (p.1,.3,.5)** (s.6): Applicant shall use the terms “solid waste” or “waste” for all references to discarded materials unless specifically referring to garbage or types of recyclables (food scraps, yard trimmings, etc.), paper/fiber and containers (metal, glass, plastics and cartons)
- **SMC 8.16.030** (a-c): Requirements applicable to discarded materials. Proper selection, maintenance and use of waste containers
- **SMC 8.16.040 :** Solid waste must be removed at least once per week. Applicants shall base weekly waste collection frequency on one to three days per week (unless otherwise determined)
- **SMC 8.16.100 :** Collection locations (curbside, enclosures and staging areas) . . . must be easily accessible to the city-licensed disposal service operator(s) for collection of solid waste or recyclable materials accumulated at such location for collection
- **SMC 8.16.180 :** Requirements applicable to large multifamily premises
- **SMC 8.16.190 :** Requirements applicable to commercial businesses
- **SMC 12.60.070, 12.60.155 (a)(3), 12.60.155 (b)(5); 12.60.220 and 12.60.230 :** Stormwater codes relating to waste, disposal, and enclosure requirements
- **SMC 903.2 :** #8 California Fire Code additions detailing sprinkler and trash termination room requirements