



1900 Powell Street, Suite 890
 Emeryville, CA 94608
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**Reducing the costs, problems and
 environmental impact of trash**

Traverse Warmington Residential, Milpitas, CA Trash Management Plan

Problem: Design a waste and recycling system for this 206 - unit residential "for sale" single family and town home complex that minimizes costs, staffing requirements and environmental impacts, while providing convenient trash disposal for the building's tenants.

Waste and Recycling Removal: The City of Milpitas has granted an exclusive franchise for waste and recycling removal for any property located within the city limits to Republic Services. Republic provides waste, commingled recycling and compost collection. Waste rates were increased January 1, 2012. Waste and Recycling charges are regulated by the city for residential properties under city ordinance #276.1.

The city expects at minimum that all residents will source-separate their trash into mixed recyclables and waste. Mixed recyclables include plastic containers (1 & 7), metal food and beverage containers, mixed paper, newspaper, cardboard and glass bottles and jars.

Currently designed trash handling system Property waste will be collected in 2 different streams: Waste, and Mixed Recyclables (paper, cardboard & containers).

Homeowners Handling of Trash. All homeowners will be prohibited from bringing materials to the trash enclosure. Waste and mixed recycling streams will be collected by the homeowners in color coded plastic trash bags (black for waste and clear for recycling) that comply with V-200-3.30 of Milpitas Municipal Code and placed outside their garage doors one day each week.

Collection of Materials. The homeowners deposited waste and recycling bags will be collected by a HOA contractor and transported to a waste and recycling compactors. (see analysis on page 3 & 4). The contractor will utilize a standard utility vehicle and tow 3-cubic yard metal trash trailers. The vehicle can tow up to 2 trash trailers. The HOA contractor will be required to adhere to City's ordinance regarding collection times (i.e. adherence to City's noise ordinance), clean-up of all collection-related spillages & responsibility for missed/return pickups.

Collection Route. When fully occupied, the trash collection contractor will proceed South on Loop C Street (from trash enclosure) and pick up bags in this order: Buildings 39-56, 57-70, 22-23, 8-9, 20-21, 12-13, 18-19, 16-17. After these units, they will then turn east on Loop D Street and pick up bags in this order: Buildings 1-5. They will then turn on Entry Street 3 traveling to Street A and collect materials in the 4 Buildings at the corner of A & B Street. See architectural drawings for path of travel.

Clean-up. In addition to picking up bags of materials, the HOA contractor will be responsible for cleaning up litter and debris, placing these materials in containers and depositing them into the waste compactor.

Phase-In Period. Collection schedules and routes will be modulated to be consistent with the patterns of owner occupation during the build out of the project. The compactor enclosure will be constructed during phase 1 of the project. This enclosure will be used for temporary loose front load bins during phases 1 through 10. The HOA trash collection contractor will hand-load black



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waste and clear recycling bags into appropriate loose front load bins within the compactor enclosure. The compactors will be installed during Phase 3. The compactor enclosure can hold up to 14 front load 3 cubic yard bins. A sufficient number of waste and recycling bins which will be ordered as required to meet the demands of the current project occupancy levels from the franchise waste and recycling vendor and placed within the trash enclosure prior to the installation of the compactors. The loose bins will initially be serviced one time per week in phase 1 and go up to 2 times per week during Phase 3. See page 4 & 5 for the detailed analysis.

When the project is completely occupied, the waste compactor will be emptied 2 times a week and the recycling compactor once a week by Republic Services as determined by the city's volume assumptions. The HOA contractor will adhere to City's ordinance regarding collection times by adherence to City's noise ordinance. The HOA contractor will clean-up of all collection-related spillages and will be responsible for missed/return pickups.



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Analysis of Compacted versus Loose (Rates reflect the rate increase effective January 1, 2012)

Below is comparative analysis of the disposal costs and labor costs of handling waste and recycling in loose vs. compacted bins. We recommend using front load bins in the central trash area to reduce the overall costs. Space requirements are about the same but there will be more truck trips to the property. Please note that the projections below are estimates derived from actual audits of comparable multifamily complexes in the San Francisco Bay area. They are not guaranteed. They are to be used for planning purposes only and may be higher or lower than projected.

WASTE AND RECYCLING SYSTEM ANALYSIS

	202 gallons/unit/week
Number of Units	206 1 Trash Storage Area
ATM Volume Waste:	0.14 cubic yard/unit/week
ATM Volume Waste:	28.28 gallons/unit/week
ATM Volume Recycling:	0.14 cubic yard/week/unit
ATM Volume Recycling:	28.28 gallons/unit/week
City Volume Waste:	0.34 cubic yard/week/unit
City Volume Recycling:	68.68 gallons/unit/week
City Volume Recycling:	0.155 cubic yard/week/unit
City Volume Recycling:	31.31 gallons/unit/week
ATM Compaction Ratio	5 to 1
City Compactor Ratio	3 to 1
Waste Compactor Size	10
Recycle Compactor Size	15
FL Loose Bin Size	3
Hauler/Recycler	Republic Franchised
Staff Labor Rate	\$12.90 per unit

CALCULATIONS:

SERVICE	PROJECTED LOOSE BINS	PROJECTED Compacted Waste Loose Recycling	PROJECTED Compacted Waste Compacted Recycling
BIN TYPE			
Loose Waste Volume - TOTAL	28.8	28.8	28.8
Compacted Waste Volume	9.6	9.6	9.6
Loose Recycling Volume	28.8	28.8	28.8
Compacted Recycling Volume	9.6	9.6	9.6
Waste Bins/week	10	1	1
Recycling Bins/week	10	10	1
Bins/week/Total	20	11	2
Waste Cost/Month	\$1,367.82	\$1,549.93	\$1,549.93
Recycling Cost/Month	\$124.90	\$124.90	\$659.79
City Mandated Fees/Month	\$1,034.12	\$1,034.12	\$1,034.12
TRASH COST/MONTH	\$2,526.84	\$2,708.95	\$3,243.84
CAPITAL COST	\$0.00	\$92,821.18	\$92,821.18
Lease Cost/Month (5yr-\$1out)		\$1,951.10	\$1,951.10
SAVINGS/MONTH	\$0.00	-\$182.11	-\$717.00
STAFF LABOR COST/MONTH	?	?	?
STAFF SAVINGS/MONTH	?	?	?
NET MONTHLY TRASH COSTS	\$2,526.84	\$4,660.05	\$5,194.94
Monthly Trash Cost per Unit	\$12.27	\$22.62	\$25.22
PAYBACK-MONTHS	N/A	-510	-129



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RATES - City:	City of Milpitas			
Franchisee:	Republic Services			
Loose Front Load Monthly Rates:	Waste	Recycling	Bin Moving	
Frequency:	3 Cubic Yards		Up to 25'	
1 x Week	\$163.77	\$0.00		\$8.36
2 x Week	\$299.94	\$0.00		\$16.69
3 x Week	\$430.96	\$0.00		\$24.98
4 x Week	\$562.04	\$0.00		\$33.33
5 x Week	\$693.15	\$0.00		\$41.65
6 x Week	\$824.20	\$0.00		\$49.96
City Franchise Fee	12.00%			
City Recycling Fees/Unit/Month	\$4.39	\$904.34		
City Waste Fees/Unit/Month	\$0.63	\$129.78		
Collection Time (Minutes to Newby)	30			
Compacted Roll-Off Rates:	Waste	Recycling		
Pick up Charge per minute	\$2.95	\$2.75		
Cost per Cubic Yard	\$23.11	\$12.64		
Container Size (cubic yards):	Total Charges including Franchise Fee			
10	\$357.95	\$233.97		
15	\$487.37	\$304.75		
20	\$616.78	\$375.54		
30	\$875.62	\$517.10		
Phasing Plan	Units	Waste-CY	Recycle-CY	
Models	12	4	2	
1	19	6	3	
1A	10	3	2	
2	21	7	3	
2A	10	3	2	
3	19	6	3	
3A	17	6	3	
4	21	7	3	
4A	12	4	2	
5	14	5	2	
5A	14	5	2	
6A	13	4	2	
7A	12	4	2	
Build Out	7	2	1	
Build OutA	5	2	1	
Total	206	70	32	



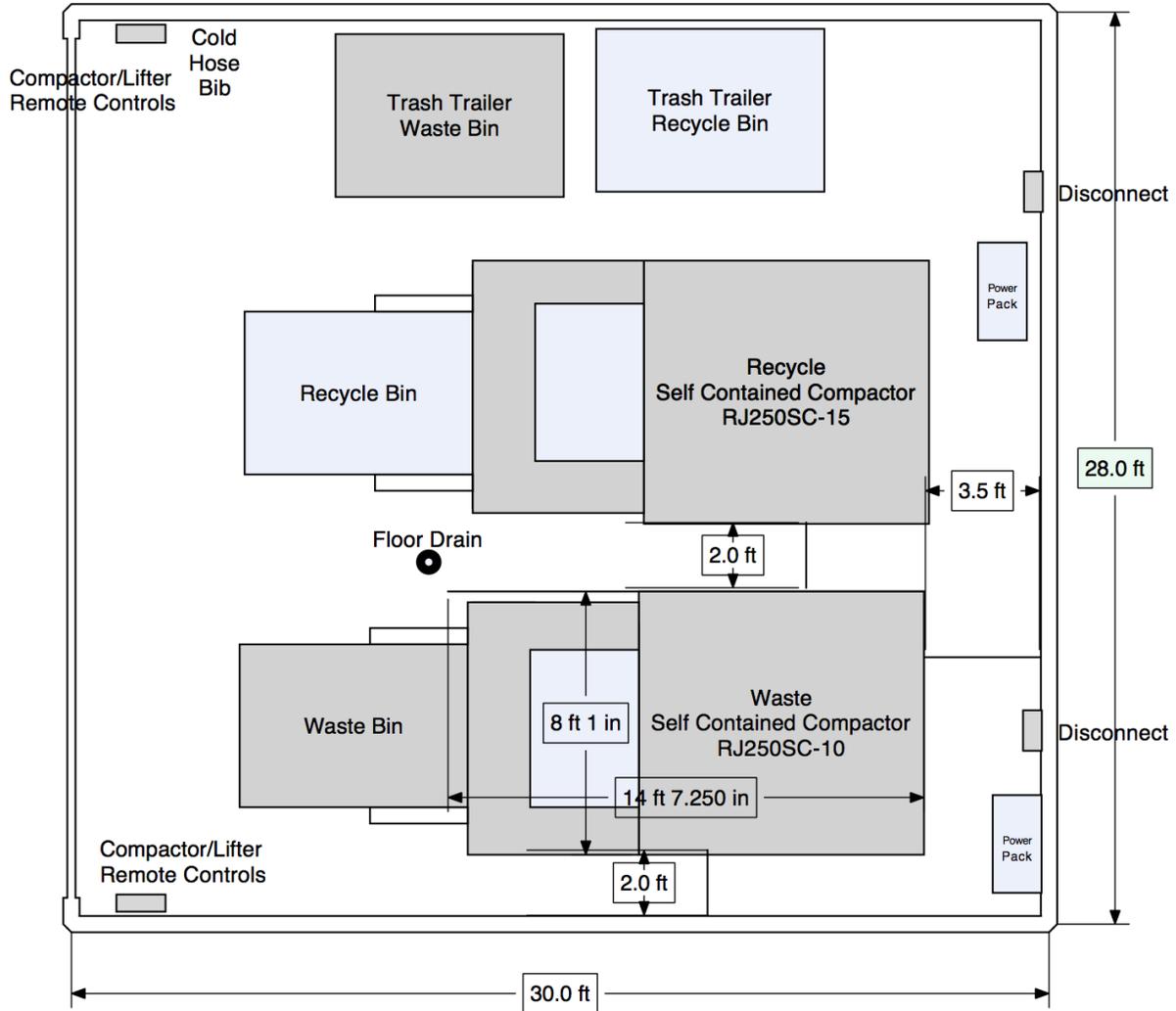
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P	Unit	Cum Units	Wkly Waste Vol (CY)	# of 3- CY Bins	Pickups per WK	Mnthly Costs	Wkly Recy Vol (CY)	# of 3- CY Bins	Pick- ups per week	Waste Unit Fees (\$. 63 per unit per month)	RECY Unit Fees (\$4.39 per unit per month)	Collect Fees (\$12.90 per unit per MO)	Total Costs per MO	Cost per unit per MO
1	19	19	6	2	1.0	\$352.65	3	1	1.0	\$11.97	\$83.41	\$245.10	\$693.13	\$36.48
1A	10	29	10	3	1.0	\$538.26	4	1	1.0	\$18.27	\$127.31	\$374.10	\$1,057.94	\$36.48
2	21	50	17	6	1.0	\$928.03	8	3	1.0	\$31.50	\$219.50	\$645.00	\$1,824.03	\$36.48
2A	10	60	20	7	1.0	\$1,113.64	9	3	1.0	\$37.80	\$263.40	\$774.00	\$2,188.84	\$36.48
3	19	79	27	9	2.0	\$2,685.46	12	4	1.0	\$49.77	\$346.81	\$1,019.10	\$4,101.14	\$51.91
3A	17	96	33	11	2.0	\$3,263.35	15	5	1.0	\$60.48	\$421.44	\$1,238.40	\$4,983.67	\$51.91
Waste Compactor Installed														
4	21	117	40		1.0	\$1,549.92	18		0.3	\$73.71	\$513.63	\$1,509.30	\$3,646.56	\$31.17
4A	12	129	44		1.0	\$1,549.92	20		0.3	\$81.27	\$566.31	\$1,664.10	\$3,861.60	\$29.93
5	14	143	49		1.0	\$1,549.92	22		0.4	\$90.09	\$627.77	\$1,844.70	\$4,112.48	\$28.76
5A	14	157	53		1.0	\$1,549.92	24		0.4	\$98.91	\$689.23	\$2,025.30	\$4,363.36	\$27.79
6A	13	170	58		1.0	\$1,549.92	26		0.4	\$107.10	\$746.30	\$2,193.00	\$4,596.32	\$27.04
7A	12	182	62		1.0	\$1,549.92	28		0.5	\$114.66	\$798.98	\$2,347.80	\$4,811.36	\$26.44
BO	7	189	64		2.0	\$3,099.85	29		0.5	\$119.07	\$829.71	\$2,438.10	\$6,486.73	\$34.32
BOA	5	194	66		2.0	\$3,099.85	30		0.5	\$122.22	\$851.66	\$2,502.60	\$6,576.33	\$33.90
Recycling Compactor Installed														
Model	12	206	70		2.0	\$3,099.85	32		0.5	\$129.78	\$904.34	\$2,657.40	\$6,791.37	\$32.97
Base price for a 3-cy bin 1x per week						\$163.77								
Base price for a 3-cy bin 2x per week						\$299.94								
10-CY compactor (per pickup)						\$357.95								
15-CY recycling compactor (per pickup)						\$304.75								



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Trash Enclosure Layout



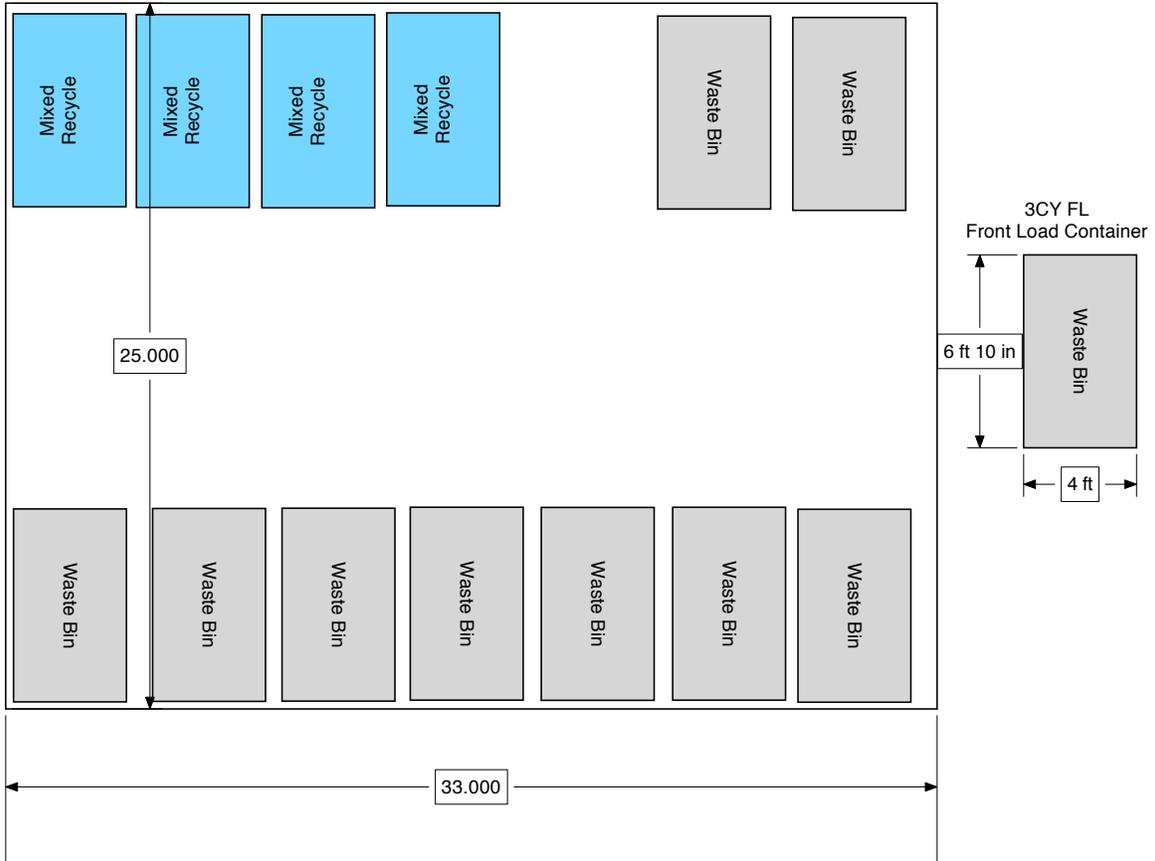
TRAVERSE RESIDENTIAL TRASH AREA PROTOTYPE Tuesday - Oct. 16, 2012 01:10:30 PM

2 Swing Gates. Maximum width possible. 12' minimum.
 Area to have minimal slope. Area under Self Contained & Waste Compactor should be level.
 Guide Channels.



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Traverse Interim TRASH AREA LAYOUT Thursday - Mar. 14, 2013 11:38:02 AM



Trash System Budget

REQUIRED EQUIPMENT Budget: 2 Compactors with bin lift and bins delivered and installed. (tow vehicle not included):

Quote #4485: \$105,289.29 (see page 13)



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SELF-CONTAINED ROLL-OFF COMPACTOR

This section is based on equipment produced by:

Marathon Equipment

Part 1 –GENERAL

- 1.1 Description
Furnish and install waste compactor Model: RJ-250SC-10 Self-Contained Compactor Equipment or equal as indicated on the Drawings and as specified within.
- 1.2 Related Work Specified Elsewhere
Concrete work - Section ? “Embeds in Cast in Place Concrete”
Electrical wiring to control panels, and wiring from control to disconnect box panels - Division 16 “Electrical”
Floor drains and hose bibs - Division 15 “Mechanical”
- 1.3 Quality Assurance
The equipment shall comply with the National Electric Code and ANSI-Z-245-1.
The equipment shall have UL approval on the entire unit.
Manufacturer shall have at least 5 years experience in the manufacture of the specified equipment and shall maintain a servicing and replacement parts system for at least 3 years after installation of equipment.
The work in this section shall be subject to all applicable provisions of governing building codes and ordinances.
- 1.4 Submittals
Product Data: Submit manufacturer’s product specifications, performance data sheets and installation instructions.
- 1.5 Product Delivery, Storage and handling
Protection: Equipment shall be protected at all times from physical damage, dirt, water etc.
Under no condition shall compactor be used for construction trash, or any other use other than what it was intended for.

Part 2 - PRODUCTS

2.1 Compactor

General Specifications: Compactor shall be a Marathon RJ250SC-10 Self Contained Compactor or equal with PLC controlled 10HP tri-voltage motor power unit with multi-cycle or single cycle timer. Unit is key controlled, hydraulically operated, ram compactor displacing 72 cubic yards of refuse per hour into a heavy duty 10 cubic yard liquid tight container. Understructure and hook shall be of a design compatible with the City of Milpitas’ Franchised Waste Vendors collection equipment.



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Features:

Charge Box Capacity-Wastec Rating	1.31 Cu Yd
Charge Opening	41" x 58"
Ram Penetration	6"
Twin Cylinders	4" bore with 2 1/2" rod
Max Line Pressure	2300 PSI
Maximum Force Total	49500 lbs
Cycle Time	33 Seconds

Construction:

- 1/4" steel AR plate floor.
- 3/16" steel plate sides with 3" x 2 1/4" structural steel tubing.
- Breaker bar 6" x 6" 1/2" with retaining teeth.
- 1/2 steel plate hydraulic cylinder mounts.
- Replaceable 1/2" UHMW polyethylene wear bars on all sides.
- Hinged/sealed lockable clean out door and top access panel.

Container Features:

- 10 cubic yard capacity.
- 1/8" steel plate floor with 4" x 2" x 1/4" structural steel tubing.
- 1/4" structural steel tubing.
- Full 3/4" thick door seal.
- Ratchet latch door closer.
- Heavy duty hinges with grease fittings.
- Tapered width from 58" at compactor to 68" at door.
- Side/bottom ratchet door and latch system with heavy duty hinges.

Hydraulic System:

The hydraulic system shall include a 10 gpm pump, 10 HP motor, 35 gallon reservoir and directional control valve. System shall be rated for 2000-psi operation with relief pressure sent at 2300-psi.

Electrical System: The electrical system shall include 10 hp, 1730 rpm motor, 208/230/480V, 18 amps, three phase, four wire w/neutral for ground, 60Hz. Furnished with motor starter and 115v control and programmable controller. All components are to be UL labeled.

Control Panel: The control panel shall be mounted to the remote power pack and shall include a key activated on-off switch, start button, manual forward reverse switch, emergency stop/reset button and 80% and 100% full lights.

Safety Features: Compactor door shall be fitted with captive switch not easily defeated to shut the machine down when the access door is opened. Compactor shall automatically shut down to prevent damage from oversize or uncrushable object.

Programmable Controller: The compactor shall be controlled and monitored by a microprocessor, which shall visually allow the user to read the various operations of the compactor. Compactor shall be programmed to automatically shut down after 15 continuous cycles of operation to avoid overheating.



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Part 3 - EXECUTION

3.1 Inspection

Inspect the areas and conditions under which units are to be installed. Do not proceed with the work until conditions are satisfactory.

3.2 Installation

Compactors shall be installed in accordance with approved drawings.

Field assembly work: perform minor field assembly work to install certain fragile or projecting parts that were not installed at the factory.

Set each component of work securely and accurately, level and properly aligned with other components and other work. Anchor as required for secure operation.

3.3 Testing and Instructions

Test each item of operational equipment. Provide maintenance manual. Instruct Owner's operation personnel in proper use and maintenance of equipment.



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COMPACTOR



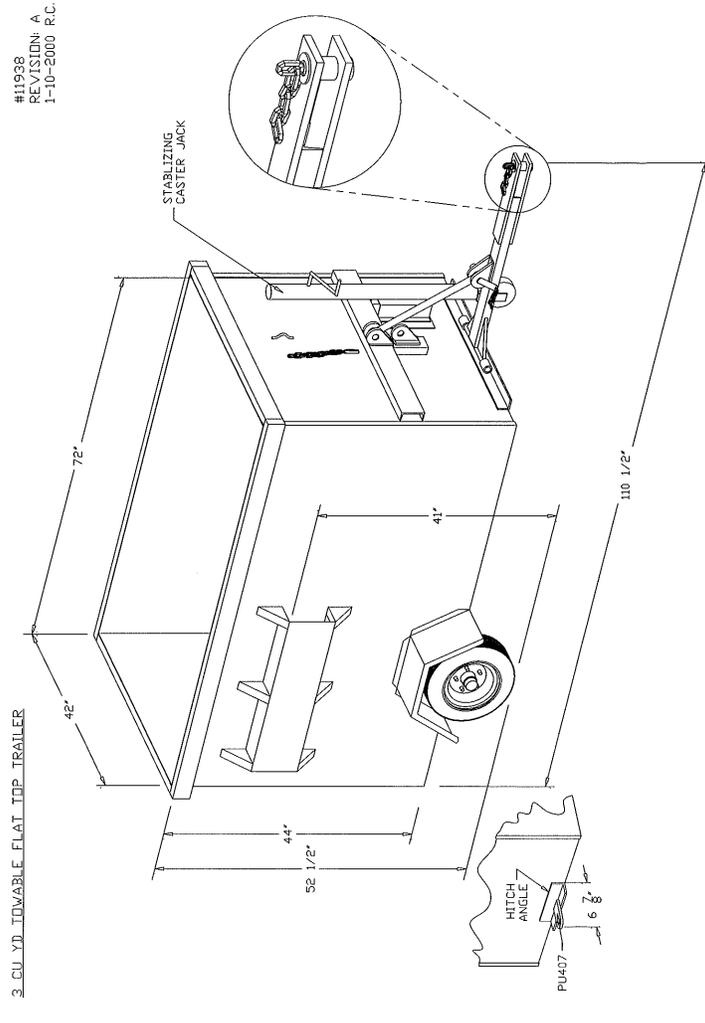
Equipped with an integral ground level cart dumper system, this RJ-250SC is ideal for sprawling apartment complexes, shopping centers, parks, resorts and other applications where a centralized disposal system is needed. "Trainable" carts can be located in convenient locations throughout the facility and periodically towed to the compactor.

The compactor ram automatically retracts when cart is being lifted so that the full capacity of charge box is available for trash being dumped. Forks remain in "full dump" position for transit to and from landfill.



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Trash Trailers for transporting materials to the compactors. These bins are not service by the city franchised waste vendor.





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QUOTE # 4485

Billing Address: Bridgit Koller
 Warmington Residential-North Cal
 2400 Camino Ramon
 Suite 234
 SAN RAMON, CA 94583

Ship Address: Bridgit Koller
 Warmington Residential-North Cal
 2400 Camino Ramon
 Suite 234
 SAN RAMON, CA 94583

Customer ID: WARMINGTONHOMES-NORTHCAL Contact ID: Warmington Resi: Koller, Bridgit
 Sales Person: sbrown Terms: Upon Receipt Quote Date: 03/14/13
 Tax Code: SC: Santa Clara Quote Expires: 05/13/13
 Ship Method: Truck PP&A Only FOB: Factory Req. Delivery Date: 04/01/14
 Comments:

Item	Description	Qty Ordered	Price	Extend
M-RJ-250SC-10	Signature Series -- Waste Compactor	2.00	22,385.00	44,770.00
M-4-SIDED FLARED HOP	Four Sided Open Flared Hopper	2.00	2,013.00	4,026.00
M-Guides & Stops-15'	15' Guides and Stops	2.00	530.25	1,060.50
M-INTEGRAL DUMPER STD	Integral dumper, controls, 3-sided hopper	2.00	14,106.75	28,213.50
M-PRESSURE GAUGE	(fluid filled) Mounted on Remote Power Pack	2.00	215.25	430.50
ST-Compactor Monitor-GSM	SmartTrash® Compactor Monitor-GSM Wireless	2.00	500.00	1,000.00
CON-FAB-3CY TOWABLE	CON-FAB-3CY TOWABLE BIN	2.00	2,900.00	5,800.00
INSTALL	Installation	1.00	3,500.00	3,500.00
MISC	Miscellaneous -- Trailer upgrade with taillights, license and reflectors.	1.00	7,000.00	7,000.00
Subtotal:				95,800.50
Taxes:				7,988.79
Handling:				0.00
Freight:				1,500.00
Total:				105,289.29

Approved: _____ Title: _____ Date: _____ PO/WO #: _____

All approved orders require advance payment for the material prior to fabrication.

Delivery is typically 6 to 8 weeks after receipt of advance payment.