



Office Waste Management Optimized:

How A Centralized
Waste Bin System Can
Reduce Operating Costs and
Enhance Your Organization's
Sustainability Credentials.

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The centralized waste bin system is the future of waste management within commercial offices.



Executive Summary

The average commercial office waste stream within the United States consists of approximately 77% recyclable and compostable materials, which without proper separation, are commonly designated as trash.

Since three-quarters of a typical office waste stream is not trash at all, the average business is then paying to dispose of commodities, thus losing value.

Companies can reduce what goes into their waste stream by implementing strategic waste management initiatives that improve separation of waste materials.

This can be as simple as implementing a centralized waste bin system, which includes the removal of all deskside bins and the installation of a dedicated system of communal trash and recycling bins located in strategic areas throughout the office layout.

The substantial advantages of a centralized waste bin system extend beyond waste management to the three pillars of sustainability—environmental, economic, and social.

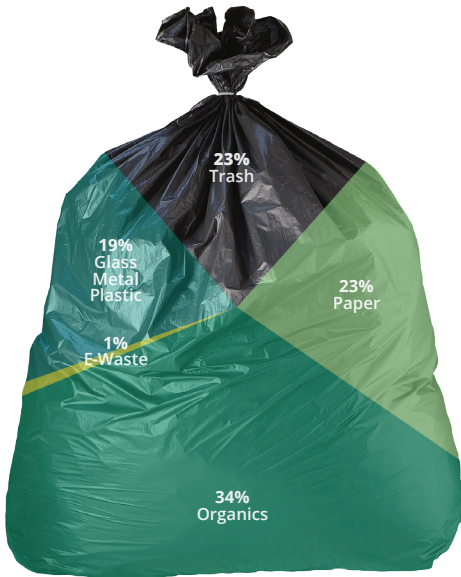
Corresponding positive impacts include increased waste diversion rates, reduced carbon emissions, improved employee health, wellbeing and retention, operating cost savings, and enhanced overall employee productivity.

The centralized waste bin system is the future of waste management within commercial offices.

Waste Audits Reveal Lost Value

Between 2016-2017, Great Forest conducted waste audits at over 100 commercial office buildings throughout the United States. Analysis of the data collected revealed that approximately **77% of materials that end up in the waste stream consist of recyclables:**

- **Organics 34%**
- **Paper 23%**
- **Glass/Metal/Plastic 19%**
- **Electronic Waste (e-waste) 1%**



Typical Office Waste Composition:
77% of what is thrown away is recyclable

Without an effective material separation program in place, these recyclables are being discarded commingled with trash, rather than being diverted via strategies including recycling and organics programs.

It is not economically viable for a waste hauler to sort the trash stream, and subsequently the materials are disposed of by the hauler through landfilling or incineration, regardless of the divertible content.

This issue leads to a variety of concerns for commercial organizations, including higher hauling costs, diversion rate declines, and unmet environmental reporting goals.

The Typical Office Set Up

Recycling programs in many offices today typically look like this:

At the employee's desk:

- a paper recycling bin,
- a trash bin,
- or both.

At a central location (such as the pantry):

- a glass/metals/plastics/cartons (GMP) bin,
- a trash bin, and potentially
- an organics bin (if the office has an organics program)

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Studies¹ conducted by Great Forest have found that deskside bins may hinder effective material separation. Because employees will dispose of all materials in the most convenient and accessible receptacle, recyclable materials are often commingled with trash in the deskside bins.

When comingled, these recyclables are often contaminated in the process (eg: paper is often stained with food grease or liquid from disposable cups) and lose their value.

Due to the economics associated with separating the materials and the low value of the subsequent commodities, the likelihood of those materials being recycled is diminished.

Better materials separation is key. Great Forest proposes a centralized waste bin system solution.

The Centralized Waste Bin System Solution

A centralized waste bin system looks like this:

At the employee's deskside:

- no bins

At several central locations:

- a glass/metal/plastics (GMP) bin,
- a paper bin,
- a trash bin,
- an organics bin (if the office has an organics program)

Great Forest has found that by removing all deskside bins and locating receptacles for all four streams in central locations (accessible to all employees), opportunities to effectively separate waste into the correct receptacles are markedly increased, whilst also serving to change employee's habits regarding waste disposal.

This centralized system works because it makes people get up (literally) and think about what they are throwing away. With deskside bins, busy employees do not pay as much attention to what they are throwing away in which bin.



When implemented correctly, the transition to a dedicated centralized waste bin system can be completed with minimal disruption to employees and daily practices.



While relatively simple, the transition to a centralized bin system is sometimes met with some initial resistance. This is common for any change made within the workplace. When implemented correctly, the transition to a dedicated centralized waste bin system can be completed with minimal disruption to employees and daily practices.

The substantial benefits that can be realized transcend waste management to encompass sustainability more broadly, offering an opportunity for organizations to optimize their waste disposal practices for streamlined operation in today's sustainably focused workplace.

Transitioning to a centralized bin system should be viewed as a strategy of waste diversion that extends beyond waste management to the three pillars of sustainability—environmental, economic, and social.

Benefits

Economic Benefits

There are several potential opportunities for financial savings associated with the implementation of a centralized waste bin system; namely via facility costs associated with reduced trash hauling fees, reduced janitorial labor, and bin liner purchasing.

Waste Hauling Savings

The price of hauling trash is significantly more expensive than the price of hauling recyclables or organic waste², and is steadily rising year-on-year. By increasing the separation of divertible materials from the trash stream, the corresponding trash weights will decrease drastically, presenting the opportunity to renegotiate hauling fees for a lower price.

The maximum market rate for hauling 1 ton of trash within NYC via a private hauling contractor is \$248. By separating out the divertible materials from the trash stream, there is potential to reduce the weight of the trash stream by 77%. Breaking the waste into its constituents³ and hauling each at the average market rate² would lead to an overall price of \$159, a 37% price reduction.



It is uneconomical to process trash and divertible materials commingled...



Janitorial Labor Savings

A centralized waste bin system will additionally reduce the total number of bins that need to be emptied each day, thereby lessening the amount of time janitorial staff spend to empty all bins.

Janitorial services in the United States average about \$28.50 per hour. For an office of 1,000 employees, by moving to a centralized waste bin setup, janitorial services staff would only have to empty 200 bins per night, rather than 1,000. At an average rate of 1 bin per minute⁴, janitorial labor hours for emptying bins are reduced from 16.7 hours to 3.3—an 80% reduction in the associated service costs from \$475 to \$95 per night.

Ongoing Consumables Savings

The expense associated with purchasing bin liners is one that is not always recognized. At face value purchasing of bin liners themselves appears minimal, yet over the course of a year can have a larger impact than realized.

By moving to a centralized waste bin system, a company with 1,000 employees using one bin liner per day at \$.04 each per unit could save up to \$10,000 over a one year period.⁵



Environmental Benefits

Implementation of a centralized waste bin system provides the opportunity to greatly improve an organization's environmental initiatives regarding waste diversion. Waste diversion is the portion of the total waste stream that is recycled or otherwise diverted away from landfilling or incineration.

Waste stream audits conducted by Great Forest throughout the United States have identified that approximately 77% of commercial office waste consists of divertible materials including paper, cardboard, glass, metals, plastics, and organic materials, with the remaining 23% trash.⁶

It is uneconomical to process trash and divertible materials commingled, and subsequently, unless these materials are correctly separated into their respective streams, they are likely to all be disposed of as trash.



By moving to a centralized waste bin system, a company with 1,000 employees... could save up to \$10,000 over a one year period.



EPA Studies have concluded that by correctly recycling items instead of disposing them as trash, reductions in carbon emissions can be achieved pertaining to the energy and resources required in producing new products from virgin materials.⁷

When a large financial services firm in NYC transitioned from deskside bins to a centralized waste bin system, Great Forest found, through a series of waste audits, a resulting 75% reduction in the percentage of recyclable materials in the trash.¹

Over the course of one month, recycling these materials instead of landfilling saved CO₂ emissions equivalent to 31,629 lbs. of coal burned, or a standard car driven 71,037 miles.⁸

An additional advantage to a centralized bin system is the elimination of the need for bin liners in deskside bins. On average, one deskside bin liner is expended per day per employee. The manufacturing of bin liners has a negative impact on the environment associated with both the consumption of virgin resources, as well as the emissions from production.

The production of one plastic bag can emit up to 300 grams of CO₂ equivalent.⁹ In an office of 1,000 employees this equates to 1.65 tons of CO₂ per week, equivalent to the amount of carbon emitted by a standard car driven 3,954 miles.⁸ Implementing a centralized waste bin system with one centralized bin setup (4 streams) per 20 employees can reduce the number of liners required to approximately 200 per day, a reduction of 80%.



Social Benefits

A healthier, more productive workforce: Centralizing the waste bin setup will encourage employees to get up from their desk each time they discard waste—this more frequent movement has been shown to result in improvements in both employee health and productivity.



...the centralized bins will create a more active work environment where employees are remaining mobile and attentive throughout the entire day.



Sports scientist Jack Groppe states that getting up from one's desk and walking 50 ft. has been found to stimulate sufficient blood flow to increase alertness and foster productivity. 'The brief movement associated with getting up stimulates blood flow throughout the body leading to a short period of hyper-oxygenation in the brain. This hyper-oxygenation serves to raise both energy and attentiveness.'¹⁰ In effect, standing up to throw out waste will keep people alert and more awake throughout the day.

The International Journal of Behavioral Nutrition and Physical Activity similarly found that short bouts of energy associated with movement reduce feelings of fatigue later in the afternoon, generating an overall more productive work environment.

In a study analyzing motion and productivity in the workplace, 42% of people reported higher concentration levels by getting up every 30-60 minutes.¹¹ While deskside bins may be within reach, the centralized bins will create a more active work environment where employees are remaining mobile and attentive throughout the entire day.

Enhanced environmental credentials both internally and externally:

Implementing an environmentally positive initiative can additionally have a beneficial impact on an organization's sustainability credentials and public relations.

Studies into consumer preferences have identified that 72% of millennials (people born 1977-1995) prefer, and are willing to pay more for, products and services from companies that are committed to positive social and environmental impacts.¹²

Further, surveys into employment preferences have identified that 76% of millennials prioritize a company's social and environmental commitments when deciding where to work, and 83% would be more loyal to a company that helps them to contribute to social and environmental issues.¹³

As millennials gain prominence within the workforce, it is essential to satisfy these needs for positive contribution in attracting and retaining the best talent.

Summary of Common Misconceptions

There are several misconceptions that may discourage a transition to the centralized waste bin system. **Proper implementation** will negate these concerns:

Concern	In Practice
<ul style="list-style-type: none"> Time will be wasted, workflow will be disrupted, employees will be distracted if they have to walk to the bins each time they need to dispose of an item. 	<ul style="list-style-type: none"> Studies^{4,5} show that in fact productivity and attentiveness increases when employees stand up and move around. This burst of movement offers health and cognitive benefits. Minimal time will be wasted if bin placement is intelligently designed to include frequently traveled routes, such as to the bathroom and pantry.
<ul style="list-style-type: none"> Employees may perceive the centralized system as an inconvenience and leave waste around desks for janitorial staff to dispose of. 	<ul style="list-style-type: none"> If the centralized bin system is implemented correctly, and bins are placed in locations that are accessible to all employees, the perception of inconvenience will diminish. Moreover, a centralized system forces users to think about what they are throwing away, leading to less mistakes.
<ul style="list-style-type: none"> Transitioning to a centralized bin system is difficult and costly. 	<ul style="list-style-type: none"> This is one of the simplest, most cost-effective ways to optimize your waste management. Transitioning to a centralized bin system only requires minor operational adjustments, and some education so users know how to use the new system. Often, no new purchases are necessary, and in fact, you may cut spending since fewer bin liners are needed.

■ Take Action: How to Implement a Successful Centralized Bin System

If implemented correctly, the transition to a centralized bin system can be completed without cost or difficulty. The transition can be completed without encountering logistical headaches or excessive financial expenditure as only minor operational adjustments are required.

Following these steps will offer an easy and successful transition and create a more efficient and sustainable work environment.

- 1 Conduct a comprehensive waste audit.** A waste audit is a survey of your waste stream. It not only verifies what you are throwing away, but the value you are losing. This will give you a baseline to gauge the effectiveness of the your current waste and recycling program.
- 2 Review your current office layout** to identify strategic locations for centralized bin stations. The optimal distance for employees to be from the trash/recycling/organics bins should be no more than 50 feet. The location of the centralized bins should be accessible to everyone in order to avoid interruption.
- 3 Notify all office staff in advance of the program update,** and provide education on the updated system and the reasoning behind it. It is imperative for staff to understand how to effectively separate waste into the correct streams, and why it is important for them to do so.
- 4 Install program signage** near and/or above all bins, and install labels directly onto all bins in order to remind all staff how to correctly separate all materials.
- 5 Conduct a follow-up waste audit** to assess the effectiveness of the program.
- 6 Review bin liner purchasing** before and after implementing the program to track cost savings.
- 7 Negotiate with your janitorial provider** to ensure that the reduction in labor is reflected in the associated service costs.
- 8 Consider renegotiating your waste removal contract** with your hauler to adjust pricing once you have evidence of an increase in recycling and reduction in trash.

CASE STUDY: *Deskside vs. Centralized Bin System*

We helped a large financial services firm in NYC transition from deskside to a centralized bin system across five floors of their office building.

- We removed over 100 deskside bins
- Set up central recycling stations
- Posted clear, color-coded signage at central stations
- Informed employees of the change
- Trained cleaning staff on new collection procedures
- Conducted follow-up waste audits to verify results

RESULTS:

77% drop in amount of recyclables found in trash:

- With deskside bins: 30% recyclables in trash
- Centralized Bin System: 7% recyclables in trash

Increase in compliance with centralized bin system:

- 25% increase in correct use of trash bins
- 5% increase in correct use of paper bins

Additional benefits:

- Reduction in labor (and associated costs) for collection of trash and recyclables
- Reduction in the use of small bin liners (saving 1,000 small liners a day)

Conclusion

Making the transition from a desktide system to a centralized waste bin system is an easy operational change that can result in substantial benefits.

The financial savings that can be achieved via reduced operating expenses, in conjunction with the positive environmental image for the organization, present an excellent return on investment for the minimal costs associated with implementing the program.

The further advantage of health and productivity increases associated with additional movement represents an advantage that will be useful in facilitating management and employee buy-in.

The centralized waste bin system is the future of waste management within commercial offices.

- 1 "Recycling Management: How Great Forest Increased Recycling With A Centralized System." Great Forest, 2012.
- 2 Maximum legal trash hauling rate: \$12.38/100 lbs.; Average recycling rate: \$2.40/100 lbs.; Average organics rate: \$12/100 lbs.
- 3 23% trash; 43% paper/cardboard/glass/metals/plastics; 34% organic materials.
- 4 Emily Gove – Director of Sustainability, BMS LLC.
- 5 "Save Money with a Centralized Recycling Program." *CleanRiver Inventive Recycling Products*, 9 Mar. 2017
- 6 Items including Styrofoam, non-rigid plastics, wax-coated papers, food soiled items, single-use batteries.
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- 13 Cone Communications. <http://www.conecomm.com/research-blog/2016-millennial-employee-engagement-study>. 2017