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San Francisco's Moscone Center Aims For 75 Percent Waste Diversion by 2010

San Francisco is a national leader in waste diversion and its premiere convention center, the Moscone Center, has an overall recycling rate that has exceeded 50 percent since 1998. Over the last five years, the convention center has annually diverted an average of more than 800 tons of materials from the waste stream. Since compost collection began in 2004, overall diversion numbers have continued to climb, reaching 500 tons in the first half of 2008 alone. Of this, over 10 percent represents donation of reusable materials to local nonprofit organizations.

Facts at a Glance

- The Moscone Center consists of more than 2 million square feet of building area, including 700,000+ square feet of exhibit space and 106 meeting rooms.
- Moscone averages nearly 1 million visitors and more than 110 shows annually.
- Moscone annually diverts more than 800 tons of waste through recycling, composting, and donation.
- Since the recycling program began, Moscone has reduced its waste disposal more than 50 percent (by weight).
- Moscone recouped its initial \$180,000 investment in the recycling program in just two years through avoided waste disposal costs.
- Over 20 local nonprofits and public schools benefit from Moscone's donation of reusable goods. Donations annually comprise over 10 percent by weight of the overall amount diverted.



Photo: Naina Ayya for SMG

The Moscone Center covers more than 20 acres on three adjacent blocks. The convention center recouped the initial \$180,000 investment in its recycling program in just two years through avoided waste disposal costs.

Program Overview

Owned by the city and county of San Francisco, the Moscone Center has been privately operated by the management company SMG since 1981. The facility annually hosts an average of one million visitors and more than 110 conventions and tradeshow and is among the busiest convention facilities in the country.

In 1989, California passed historic legislation to decrease the amount of materials disposed in landfills. Assembly Bill (AB) 939 mandated municipalities to divert 50 percent of their waste streams from landfills by the end of the year 2000. In San Francisco, businesses generate nearly 70 percent of all waste.

In 1996, SMG made a corporate commitment to environmental responsibility in all operations at the Moscone Center, with the intent to significantly reduce the facility's waste stream and waste removal costs, use resources more efficiently, and benefit the local nonprofit community through donation of reusable materials. SMG hired consultants to conduct a waste audit and develop a waste prevention and recycling plan. The resulting plan called for a full time recycling manager and phasing in a recycling program to handle implementation issues such as staff training and market development.

California law AB 2176, passed in 2004, further requires that the largest venues in each city and county develop and implement plans to reduce solid waste and report information regarding waste reduction efforts to their respective jurisdictions annually. The San Francisco Board of Supervisors passed a resolution to achieve 75 percent landfill diversion by 2010, with the ultimate goal of achieving zero waste by 2025. In 2008, the city achieved a 70 percent diversion rate, the highest in the nation.



The first phase of the Moscone Center's waste reduction plan began in 1998 and concentrated on materials that provided the greatest diversion in the shortest time with the least net economic cost. This effort involved recycling corrugated cardboard, mixed paper, and beverage containers, as well as donating leftover goods such as event giveaways and food to local nonprofit organizations. The Moscone Center places a priority on working with local nonprofits whose efforts benefit residents of San Francisco and the greater Bay Area.

The second phase, begun in 1999, included diverting contractor-generated materials such as carpet padding and wooden pallets, and donating event decorations such as foam core signs and vinyl banners. In 2000–2001, SMG purchased wood compaction equipment, which decreased the volume by a factor of 3:1 and significantly cut the cost of recovering large, broken crates and pallets. The program also focused on strategies to collect mixed paper from the exhibit hall floor during move-outs.

During phase three, SMG began focusing on waste prevention by adopting an expanded recycled-content purchasing program and switching to reusable plates, utensils, and other food service items. During the 2002 construction of the new facility Moscone West, new city legislation required that the project contractors track, report, and recycle construction and demolition debris; architects employ resource-efficient materials and design principles; and allocate dedicated space for recycling in the layout of the new facility.

Various other waste prevention measures are in place at the convention center. For example, in 2007, new paper towel dispensers were installed that eliminated the need for batteries and used coreless rolls, preventing thousands of cardboard cores from being disposed in 2007. Bakery racks are returned to the vendor. And a switch to all digital communications for event data reduced office paper usage by 50 percent.

Since facility-wide collection of compost such as wet kitchen scraps began in 2004, overall diversion numbers have climbed significantly. For the first half of 2008 alone, overall diversion amounted to 500 tons. Compostable serve ware, rolled out and collected starting in fall 2007, added 3 percent to overall diversion. In 2008, kitchen scraps and serve ware compost comprised by weight nearly 33 percent of overall diversion.

The facility has won many awards honoring its environmental commitment, including the California Integrated Waste Management Board's "WRAP of the Year" Award in 2001 for being a leader in environmental stewardship and a Governor's Environmental and Economic Leadership Award in November 2001 for demonstrating that environmental protection and conservation can be reconciled with economic growth.

Nuts and Bolts

The Moscone Center generates an average of 2,000 tons of waste per year. Almost half of the convention center's waste stream is generated at the event move-out stage from the exhibit halls. The waste stream varies from show to show, but mixed paper is generally the number one material collected by weight, followed by cardboard, organics for composting, wood (from pallets, abandoned booths, and

Photo: Naima Ayya for SMG



Meeting planners have the option to produce branded recycling signs, such as those pictured here at a Moscone Center event, and to arrange for additional bins. In 2009, the state awarded Moscone Center with a grant for customized bins and graphics.

Photo: Jennifer Hurth, Artist



Local artists use recycled vinyl advertising banners from the Moscone Center to create tote bags with a designer look to them. In 2008, nearly two tons of banners were donated to be made into tote bags.

packing crates), donated goods (such as foam core and vinyl banners), carpet padding, and beverage containers.

Recycling Bins, Locations, and Labeling. At the Moscone Center, recycling bins are paired with garbage cans throughout the facility. Bins conform to aesthetic as well as functional principles.

Bins are labeled according to the material collected, and all display the chasing arrows recycling symbol. For example, the bins for cardboard are labeled “Moscone Center, Cardboard Only” with the chasing arrows recycling symbol. Bins for compostable serve ware are placed in cash-on-delivery concession locations, where food and beverages are sold. These bins feature illustrations to help patrons understand that the drink cups, although they look similar to conventional plastic cups, are actually compostable.

Signage has proven effective for encouraging can and bottle collection, as contamination (mixing of trash with recyclables) has not been a problem. The 2007–2008 composting pilot program for boxed lunches and food serve ware, however, required additional public education because many of the products look like plastic and their recyclability was new and unfamiliar. To improve source separation, volunteers are recruited by some events to help guide attendees to dispose of compostable lunch boxes and plastic beverage bottles or aluminum soda cans separately. Preventing contamination between recyclables and compostables is important. Only 2 percent contamination is accepted by the waste hauler.

Collection Logistics. The convention facility consists of three main buildings: Moscone South, which opened in 1981; Moscone North, which opened in 1992; and Moscone West, which opened in 2003. South has two loading and staging areas, and North and West each have one. The facility has five compactors, two balers, a debris box (open-top bin) for wood, three bins for organics, and three debris boxes for large waste. Additional debris boxes can be brought in as needed.

SMG installed an electronic monitoring system on the compactors to ensure that they are full before emptying. The balers can be transitioned to bale film plastics when there is a large enough quantity to warrant it, such as with the annual San Francisco International Auto Show. The convention center’s waste hauler charges for compactor removal depending on a formula of weight, time, and distance. The charge for emptying the debris boxes is based on volume. All trash removal service is arranged on an on-call basis.

SMG’s recycling staff collaborates with others that affect the generation of waste within the facility, such as the exposition service contractors, event planners, and employees from 10 labor unions, to turn recycling collection into a standard operating procedure.

SMG labor places unwanted cardboard boxes into marked blue carts for easy collection, and the material is baled before being trucked off-site for recycling.

Exhibitors and show managers label leftover, unwanted giveaways and reusable items, and Moscone’s recycling manager directs the donation of materials to local nonprofits. Most nonprofits pick up the items from

Photo: Naima Ayya for SMG



In public areas, such as the lobbies adjacent to the exhibit halls, brushed steel bins are clearly marked for recycling bottles and cans. These bins are located at the foot of the Moscone North main escalators and throughout the lobbies.

Photo: Naima Ayya for SMG



Green bins such as this one are used to collect cardboard recovered at the Moscone Center.

the center themselves, but Moscone is able to deliver some donations as needed. These items are collected continuously, and donations are given away after shows have moved out.

Conference exhibitors receive two types of stickers from Moscone's recycling manager during show breakdown. They can place green "Recycling" stickers on boxes of paper to be recycled, such as tradeshow literature, and they can place blue "Donation" stickers on items to be donated to nonprofits, such as leftover promotional pens, giveaway bags, and unwanted sample products.

Vendor Participation. In compliance with San Francisco's 2007 law mandating that all businesses use compostable serve ware and to-go containers, Moscone's food and beverage vendor, SAVOR-Catering by SMG, rolled out its compostable serve ware program in fall 2007. Plastic serve ware was replaced with products made from vegetable starches or PLA (polylactide), including clamshells, salad bowls, water cups, cutlery, cups, and beverage cup lids. The waste hauler takes all of these with food waste to a composting facility. Alternately, china service continues to be available for more upscale functions. Bottled water has been replaced with pitchers of water wherever possible. For several years, the vendor has collected food scraps from the kitchen for composting. SAVOR-Catering also regularly donates leftover meals. At Moscone West alone, meal donation totals nearly two tons per month through nonprofits such as San Francisco Food Runners, which distribute the food to city food banks and feeding programs.

Educational Efforts/Public Outreach. To educate and motivate staff and participating partners such as clients and contractors, SMG incorporated waste reduction tasks into staff job descriptions, developed written procedures, and launched, in 1999, a quarterly newsletter, "Changing Conventions," to promote results.

SMG routinely educates show and event managers about Moscone's recycling program through on-site pre-event meetings and online resources such as its "Green Meetings Begin With You" guide (found at http://www.moscone.com/pdf/Green_Meetings_Begin_with_You.pdf) and a recycling section in its downloadable meeting planners' handbook (available at <http://www.moscone.com/site/do/mtgplanner/guideline/view?id=41>). The goal is to have the convention center and its customers work together early in the planning process to reduce waste generation, increase reuse, and more fully participate in recycling. In this way, the responsibility for waste diversion is transferred, to the extent possible, to the organization responsible for bringing in the materials. In addition, facility staff present at industry conferences and meetings and make themselves available at peer-to-peer events to discuss the importance of advance planning for recycling.

Financial Benefits. A 1996 waste audit put Moscone's waste disposal cost at nearly \$525,000 per year. Since then, the waste hauler's rates have more than doubled and Moscone West opened for business. According to Dick Shaff, general manager, waste diversion is the number one way to combat these rising costs. SMG/Moscone Center invested \$180,000 in its recycling program in the first year in 1996, but recouped those costs in just two years due to the avoided cost of disposal. Despite the increased cost and one additional facility

Photo: Naina Ayya for SMG



The Moscone Center's balers, one of which is shown here, compact cardboard and are located on the loading docks. Bales are then delivered to local recycling markets.

Photo: Naina Ayya for SMG



Moscone vendor SAVOR-Catering conducted rigorous testing before using NatureWorks's newest coffee cup lids made from PLA. Compostable coffee lids must be resistant to expanding from the effects of coffee's steam.

opened in 2003, the avoided cost of disposal, strong local and state mandates, and access to markets continue to drive the expansion of these programs.

Reasons for Success

“The most important thing is getting buy-in from every stakeholder from the very beginning,” says Shaff. “It starts with top management and runs throughout all levels of the organization. If it isn’t driven from the top, it’s never going to be adopted throughout.”

Cooperation among diverse stakeholders is critical, including SMG staff, the city and county of San Francisco, labor unions, show management, exhibitors, contractors, and attendees.

Photo: Naina Ayya for SMG



In compliance with the city’s law mandating businesses switch from plastic to compostable serve ware, vendor SAVOR-Catering tested hundreds of models of serve ware before commissioning a lunch box made from PLA that was designed to be strong enough to withstand stresses of high volume convention service. Shown here are lunch boxes stacked for lunch at Moscone West.

Future Forecast

As the city and county of San Francisco continue to pursue the goal of zero waste by 2025, the Moscone Center plans to remain at the forefront in adopting green practices, aiming to meet the 75 percent diversion rate by 2010.

More Information

www.moscone.com/mtgplanners/green_meetings.html

www.moscone.com/site/do/mtgplanner/guideline/view?id=41

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