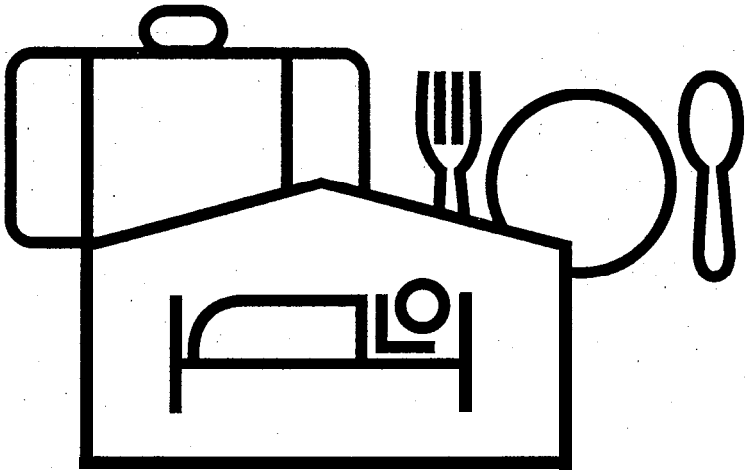
Less Garbage Overnight

A Waste Prevention Guide for the Lodging Industry



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INFORM, Inc., is a nonprofit environmental research organization that examines business, institutional, and government practices that threaten our environment and public health; assesses changes business and government are making to improve their performance; and identifies new business strategies and technologies moving the United States toward an environmentally sustainable economy, INFORM'S research currently focuses on strategies to reduce industrial and municipal waste and to preserve air and water quality.

A copy of INFORM's Annual Report may be obtained by contacting the Office of Charities Registration, 162 Washington Avenue, Albany, NY 12231, or INFORM, Inc., 120 Wall Street, New York, NY 10005-4001.

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Introduction

Protecting the natural environment is one of the many challenges that hotel and motel operators face -but it is a challenge filled with opportunity. This report deals specifically with one avenue for protecting the environment: waste prevention, an approach that can help control costs and increase efficiency as well.

By changing the ways we do business, all of us living in industrialized societies can find new ways of leading rich lives while consuming fewer resources and generating less waste. The hospitality industry can be in the vanguard of these changes. Hotels and motels can use their own resources better, spend less time and money managing waste, and, at the same time, play a significant educational role for their guests.

Waste prevention is a win-win approach that is neither costly nor cumbersome. It is also the approach that tops the list of solid waste management options adopted by the US Environmental Protection Agency, followed by (in order of desirability) recycling (including composting), incineration, and landfill disposal. Unlike all the other strategies, waste prevention decreases the amount (and toxicity) of waste generated. Prevention also reduces the cost of collection, recycling, and disposal systems, and it helps alleviate the political conflicts that often surround waste management systems.

The growth of recycling during the 1980s and 1990s represents a step forward in our management of materials, because recycling mines the waste stream for valuable materials that can be reprocessed into new products. But waste prevention - including the reuse of products - is even more basic. It avoids the creation of waste in the first place.

INFORM has prepared this guide as a tool for identifying strategies that can be implemented by hotels and motels to prevent waste generation, reduce the burden on the natural environment, and save money. Developed for lodging operators, the guide shows how to create less waste by exploring prevention opportunities in such areas as purchasing, housekeeping, operations, and property improvements. The guide also describes innovative waste prevention efforts undertaken by more than 20 hotel operators throughout the United States and Canada, including many that resulted in cost savings.

There are more than 45,000 hotel and motel properties in the United States, with 3.4 million rooms.' Each of these properties has its own unique operating characteristics - yet they all can benefit from implementing waste prevention strategies. These benefits include:

- Saving money on the purchase of products and packaging
- Saving money on waste disposal costs and avoiding fines for improper hazardous waste disposal
- Showing your guests and community that you care about the environment
- Boosting employee morale.

Using This Guide

Less Garbage Overnight is a planning tool that hotel and motel operators can use to design and implement waste prevention plans for their facilities. At the same time, lodging operators can use this guide to explore ways of meeting the needs of their environmentally-conscious guests. Specific waste prevention activities are organized within nine operating departments of a hospitality operation, so it is possible to either read the guide in its entirety or simply read the section that applies to your department.

The guide contains highlights of waste prevention efforts in North American hotel properties, including, where available, dollar savings and quantities of waste reduced. In most cases, **INFORM** obtained its case study information from interviews with representatives of the hospitality industry; in cases where information came from another source, that source will be found in the footnotes. Contact information for these 20 representatives, with addresses and phone numbers, is provided in Appendix IV.

Three other appendices provide additional information for hotels seeking to reduce materials use and toxicity. The first describes refillable beverage bottle systems and reusable shipping container systems; the second describes less toxic products hotels can use to reduce the risks associated with exposure to common toxic substances such as cleaning chemicals and paints; and the third describes features of office design and construction that take into account natural resource conservation, reuse of materials, minimal use of toxic substances, and energy efficiency.

A final note: Waste prevention is just one part of an overall environmental quality program; recycling, water management, and energy management can also help your hotel or motel reduce its environmental impact and decrease costs. Exploring these options may lead your hotel to a more environmentally and economically sustainable way of doing business.

I. Solid Waste and the Waste Prevention Solution

Solid Waste: A National Perspective

In recent years, US government, business, and environmental leaders have all come to recognize waste as the visible result of the inefficient use of natural resources. Products and packages with short life cycles (including those considered "disposable") create problems that go far beyond disposal. Short-lived products also contribute to the depletion of natural resources and to the creation of pollution during materials extraction, product manufacture, and product use.

Once discarded, products and packaging impose substantial environmental and economic burdens on the nation. US residents and businesses generated some 207 million tons of municipal and commercial solid waste in 1993.[2] This level of waste generation is equivalent to 4.4 pounds per person per day - more than 50 percent higher than in 1960, and higher than that of most other industrialized countries.[3] The bill to manage this discarded material is huge: $31 billion a year, up from $5 billion in 1970.[4] Since 1970, the cost to manage a ton of garbage has grown from $41 to $140.[5] Local governments - and hence, taxpayers - foot most of this bill.

Most of US solid waste is either dumped in landfills or incinerated - both methods that pose environmental problems. Landfills can pollute both water and air, and incineration generates ash that is often toxic.

Recycling: A major step forward. Recycling is a valuable strategy that mines the stream of materials discarded as waste. Recycling has risen dramatically since the mid-1980s: in 1993, the United States recycled 21.7 percent of its waste, up from 9.9 percent in 1985.[6] But municipalities still face the task of finding markets for the recyclables they collect, and collecting and processing materials in order to use them in manufacturing all over again is a costly cycle that can generate toxic pollutants. Finally, recycling does not address why this waste is created in the first place.

The Waste Prevention Solution

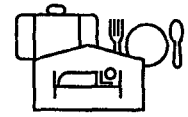
Simply defined, waste prevention is a reduction in the amount and/or toxicity of materials entering the waste stream prior to recycling, treatment, or disposal. “Source reduction” - that is, reducing waste at the source - is another term for this approach. Waste prevention can be part of an “environmentally sustainable” way of living and doing business - meaning it can be sustained long-term in harmony with the environment, without depleting limited resources and without polluting our air, land, or water.

Waste prevention is a winning strategy, both environmentally and economically. It can be accomplished in a variety of ways. Waste prevention may mean a change in practices to encourage the use of durable, repairable, and reusable products. It may mean changing a product or package to reduce the materials needed to make that product or package. Or it may even mean eliminating the need for a specific product or certain packaging elements.

Strategies that prevent waste also conserve valuable resources. For example, reusing corrugated boxes - the largest-volume component of a hotel’s waste stream - reduces raw material use, avoids the need for energy to manufacture or recycle boxes, and prevents the pollution that arises from the manufacture and recycling of additional boxes.

Waste prevention is a call to do more with less. Making this transition will require:

- Fundamental changes in the design and use of products and packages and in systems for distributing them
- Essential shifts in business, institutional, and individual practices to achieve more efficient materials use
- Public and private promotion of waste reduction and careful resource use by communities and businesses.



Recycling and Waste Prevention: Complementary Activities

People sometimes view prevention as an alternative to recycling or even as an approach that conflicts with recycling. However, the waste prevention approach - which includes reuse - treats prevention and recycling as complementary activities, viewing prevention as the first step and recycling as an option to use after waste prevention efforts have been fully tapped.

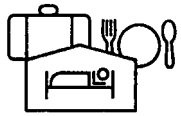
The Solid Waste Challenge in Hotels and Motels

It is difficult to estimate the amount of solid waste generated by individual hotels. However, critical factors include the number of employees, the number of guest rooms, the scope of kitchen and restaurant services, and the size and number of meeting rooms or convention facilities. Luxury hotels usually employ more staff and offer more services to guests than more moderately priced properties, and thus often generate more waste.

What's in hotel waste? In 1992, the Florida Cooperative Extension Service and the Energy Extension Service conducted a study of hotel recycling opportunities at five Florida properties. Researchers conducted waste audits in typical guest rooms where the waste was weighed and categorized daily for seven days. The waste varied from half a pound to 28.5 pounds per day per room, depending on the hotel type and number of guests staying in the rooms. The hotels with the highest waste per room were resort properties near major family attractions; these were rooms large enough for four or more people, usually parents with children, who tended to eat take-out food in the room as a way of keeping costs down. Overall waste at hotels with restaurant and banquet facilities averaged 260 pounds per room per month.[8]

Another study performed at the Hyatt Regency Chicago found waste generation rates of one pound per room on a non-checkout day (mostly old newspapers) and two pounds per suite on a non-checkout day. On checkout days those generation rates doubled."

Two categories of garbage dominate the typical hotel waste stream: paper and food/organics. In an analysis of hotel waste in New York City hotel properties (see Figure 1), they comprise close to 70 percent of the waste stream.



Waste Prevention in the United States: Starting to Show Results

In 1994, the EPA projected that per capita waste will decline slightly by the year 2000 - the first such decline in 40 years.' According to the EPA, the reason for the projected decline is increased waste prevention efforts by individuals, businesses, and institutions. The projected decrease is small - 0.1 pounds per person - and absolute quantities of waste will increase due to higher population and the formation of new households.

Nevertheless, the EPA's anticipated decline in per capita waste suggests that waste prevention is possible - and that prevention can have a great impact on the environment.

A more compelling way of looking at waste prevention is this: **INFORM'S** research suggests that preventing the creation of just 15 percent of US solid waste would eliminate the need for extracting, manufacturing, distributing, and ultimately recycling or disposing of 31 million tons of material annually.

Figure 1. Industry-wide Waste Composition Analysis for New York City Hotels

Paper	39.93
Food/organics	27.82
Glass	7.59
Plastic	7.05
Yard waste	6.74
Metal	6.11
Other	4.34
Hazardous	0.19
Total	99.77

Source: ***New York City Department of Sanitation 20 Year Solid Waste Management Plan,*** Appendix Volume 1.1, Table 3.22, "NYC Commercial, Industrial and Institutional Waste Generation and Composition."

Waste Prevention in Hotels and Motels: Getting Started

Starting a comprehensive waste prevention program is a team effort, It requires planning, communication with all employees and departments, and the development of well-understood goals.

To get started, hotels and motels can target their waste prevention initiatives by looking in three key directions:

- Assessing purchasing decisions
- Understanding how materials and equipment are used
- Examining the waste stream.

Assessing purchasing decisions. Since most products purchased eventually end up in the hotel's waste stream, a purchasing assessment can determine if longer-lasting, repairable, and reusable items could replace shorter-lived, non-repairable, single-use products.

Purchasing plays an especially important role in waste prevention. Simply, if an item is not bought, it cannot be thrown away. Incorporating waste prevention objectives into purchasing policies can decrease the amount of waste generated, encourage vendors to develop and sell products that create less waste, and often save money. Keep in mind that hotels - like other businesses - pay for the use of items twice: once upon purchase and again at disposal.

To explore the role purchasing can play in waste prevention, each purchasing agent or general manager could begin by asking, for each item delivered, why do we have this? If an item is not deemed essential, why buy it? If it is needed, does the product chosen make the most economical use of materials and offer the least possible toxicity? Do vendors sell less harmful alternatives? Can the property buy the product in bulk to reduce costs and packaging waste? Buying products in the largest quantity possible in one package utilizes less packaging per ounce than several smaller containers. Can containers be returned for reuse, or can they be recycled?

Understanding how materials and equipment are used. Besides procurement, hotels can prevent waste by changing the way they use products and materials. For example, circulating a memo to five people instead of distributing separate copies to each person saves four copies; using electronic mail saves six copies, including the original. **INFORM'S** research indicates that reducing the amount of paper used through two-sided copying saves $100 per ton in avoided disposal costs and $1,000 per ton in avoided purchasing costs.[10]

Hotels can also “intensify” their use of products to keep them in working condition longer and to get the maximum use out of a product. For instance, by repairing broken guest room furniture, office equipment, and kitchen appliances, hotels can lengthen the useful life of these products, keeping them out of the waste stream longer and saving money, too. In addition, hotels can reuse materials from one area in other parts of the property - eliminating the need to buy, use, and dispose of additional items - or they can donate them to charity.

Examining the waste stream. The goal of examining a property’s waste stream is to look for opportunities to prevent waste by identifying materials that are:

- Major components of the waste stream (for example, office paper)
- Easy to reduce (for example, by composting landscaping waste)
- Sources of pollution in the local waste management system (for example, batteries).

To learn what materials make up a hotel’s waste stream - and the cost of handling them - a hotel could undertake any or all of the following activities:

- A visual inspection of the hotel, conducted by walking through various parts of the property, including guest rooms, food service areas, offices, and loading docks
- Interviews with staff in each area, including grounds crews, housekeeping staff, office personnel, and food service workers
- Examination of purchasing records
- Sorting of waste by department (or hotel-wide); in “dumpster diving,” “divers” physically separate and measure materials discarded in dumpsters and recycling bins
- An examination of waste hauling records to learn the weight or volume of waste generated and the cost of disposing of or recycling that waste

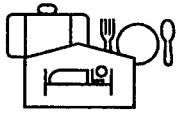
By gathering quantitative information on discarded materials, hotels can set realistic goals for preventing waste.

Balancing waste prevention with service and ratings. Waste prevention does not have to mean a reduction in the level of service offered, even for the most luxurious hotel. In many cases, waste prevention can be an “invisible” strategy, one that takes place behind the scenes of a hotel’s public operations. However, other strategies may be more visible - for example, using refillable shampoo dispensers instead of mini-sized bottles - and managers may be concerned that their guests will perceive the change as a cut in service.

Yet there are many ways to make guests feel pampered without contributing to the waste stream. **INFORM** found that some luxury hotels have been able to use the money saved by purchasing refillable or reusable products to offer higher quality products overall, such as better-quality shampoos in the refillable dispensers. Hotels might offer guests a glass of champagne upon arrival, fresh flowers in the room, or a basket of fruit.

Managers may also be concerned that some waste prevention measures could lower the ratings the property receives from independent travel organizations. According to representatives of ***Mobil Travel Guide*** and the American Automobile Association's (AAA) Industry Evaluations department - the two leading sources of these ratings - this is not necessarily the case. Hotel evaluations are based on the overall level of service a property provides, so presentation counts, along with the specific items presented. At the same time, hotel inspectors may evaluate certain changes as a cut in service - regardless of their presentation. Representatives of AAA point out that hotel managers can contact their inspectors to discuss the implementation of waste prevention measures at their properties."

Mobil Travel Guide does not rely on a checklist or set criteria regarding the specific nature of the items or services a hotel must supply in order to be awarded a top rating. A representative of the publication says she expects that the "green" movement that is developing at many lodging properties will result in greater recognition of environmentally conscious practices throughout the hospitality industry.'*

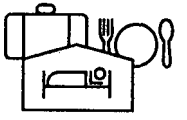


"Environmentally Friendly"? *Caveat Emptor*

Various businesses, including some in the hospitality industry, have adopted terms such as "environmentally friendly" to describe their products or services. The problem with such terminology is that there are no universally accepted criteria for defining "environmentally friendly." For this reason, INFORM Does not use this terminology to evaluate hotels' efforts to reduce their environmental impact. In this report, **INFORM** has evaluated the specific environmental effects of certain products and practices, assessing whether they represent a way of using resources that is more efficient and less polluting than other ways of accomplishing the same tasks or goals.

A marketing approach. Indeed, some hotels have found that their guests appreciate those steps taken to help the environment. Educating guests about a hotel or motel's policies and asking for feedback can be an important part of a hotel's marketing approach.

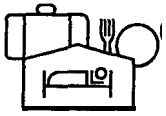
Guests who have become used to "green" habits in their own homes may appreciate a door-hanger that allows them to decide whether or not to have newspapers delivered or sheets changed daily throughout their visit. Properties that cater especially to families might choose to educate and involve their guests in waste prevention, while business-oriented properties might opt for a more subtle approach. Individual managers can determine how to balance waste prevention with the level of convenience and comfort their guests have come to expect.



Counting on Employee Initiative

In 1990, Toronto-based Canadian Pacific Hotels & Resorts (CPH&R) asked its 10,000 employees at 26 hotels in Canada how they felt about introducing a "green" program. More than 90 percent strongly favored undertaking environmental initiatives, and 82 percent said they would volunteer extra time and effort to help. The company then formed environmental committees at every hotel and used employee suggestions to develop its "Green Partnership Guide."

Ann Checkley, CPH&R's Director of Communications and Enviromnental Affairs, says that, through a combination of diverting materials for reuse, recycling, and waste prevention, the chain's hotels cut the amount of waste they sent to landfills by an average of 50 percent between 1991 and 1995, as measured by reduced tipping, fees (landfill disposal fees).



Arbor House, An Environmental Inn

In March 1994, Cathie and John Imes purchased a four-room bed-and-breakfast in Madison, Wisconsin, with the objective of turning it into what they call an "environmental inn." The following year, they expanded the inn to eight rooms. Wherever possible, they have incorporated waste prevention principles as well as recycled materials -two approaches that conserve natural resources. Their design incorporates timbers that had been used previously in the Sears Roebuck building in Chicago, along with wooden flooring from that building. Other floors are covered with tile that is 80 percent former windshield glass. Bathroom tiles are 55 percent recycled glass.

In retrofitting and expanding the inn, the Imeses used low-toxicity paints, stains, carpeting, and construction materials. Allergy-prone guests report that the inn's use of "cleaner" products - including undyed sheets and towels made of organically grown natural fabrics and home-made fabric softener - have helped alleviate their symptoms, A paint store in Madison supplies plant-derived paints and wood stains with low-VOC (volatile organic compound) content or none at all, at the same cost as regular paints and stains.

"Our strategy is to purchase products locally if possible, then look to the region and then the nation," says Cathie Imes. "In this way we avoid unnecessary shipping and save on fuel use." For example, the fireplace in the inn's new annex is made of sandstone from a Wisconsin quarry. The same principle applies to food purchasing. Whenever possible, Arbor House serves seasonal food from its own garden or local farmers' markets.

Arbor House considers enviromnental factors in all areas of its operations, including using a plain-paper fax machine to avoid non-recyclable fax paper. But for a small inn, cost is key. For example, the Imeses wanted to do away with the mini-sized shampoo bottles that the previous owners had provided as giveaway items, but installing toiletry dispensers was cost-prohibitive. So they decided to purchase Aveda shampoo made from organically grown plants, which they store in gallon jugs and pour into refillable 16-ounce bottles as needed.

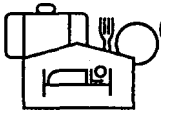
The Imeses share information about the environmental dimension of their property, hoping to inspire guests to adopt some of the ideas they've implemented. "We try to dispel the myth that 'green' costs more," says Ms. Imes. "In some instances, it does. But if you look at the totality of the product-how it was produced, distributed, transported, how long it lasts, and what happens to it when you're done with it - when you look at all these things, the playing field is more level. You have to look at the product completely," she says, "not just at price and quality."

II. Hotel and Motel Waste Prevention Strategies

Within a hotel or motel, each functional area presents its own set of waste prevention challenges. The checklist below, which suggests a variety of specific strategies for preventing waste, is organized according to these functional areas. Hotel management may wish to distribute specific sections of this checklist to staff responsible for managing different aspects of the facility.

1. Guest Rooms

- ❑ Review policies for guest room amenities and the packaging of those items. Inform guests of efforts to provide amenities that have less impact on the environment.
- ❑ Provide soap, shampoo, and lotion in refillable dispensers, instead of individual containers. Provide individual containers only upon request.
- ❑ Do not remove "gift" amenities from the room after a guest departs unless the seal on the package is broken. Leave unopened amenities in the room for the next guest.
- ❑ Reduce size of individually packaged items, such as bar soap, to reduce the quantities left over.
- ❑ Rather than offering individually packaged amenities, consider offering another type of gift, such as a basket of fruit or a bottle of wine.
- ❑ Wait to replace-half-filled toilet paper rolls and tissue boxes until they are almost completely used. Leave new rolls and tissue boxes in bathrooms for guests to replace.
- ❑ If half-used items must be removed, place them in employee rest rooms or donate them to charity.

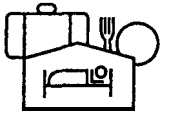


An Industry leader: Saunders Hotel Group

Beginning with a paper recycling program in 1989, the Saunders Hotel Group has created a comprehensive environmental program in its three Boston hotels: the Boston Park Plaza Hotel & Towers, the Copley Square, and the Lenox. The program is overseen by Eco-Logical Solutions, Inc., a consulting firm founded by Tedd Saunders of the Saunders Group. Guest surveys showed that 96 percent of the hotel group's guests wanted to see environmental improvements, and the hotel group attributes nearly $3 million in new business to awareness of the program.

Guest room practices at the 960-room Boston Park Plaza include:

- Designing and installing a dispenser system for soap, shampoo, hair conditioner, body lotion, and mouthwash. This has eliminated nearly 2 million individual plastic containers per year and saved the company $0.20 per occupied room per night.
- Making shower caps and sewing kits available only upon request.
- Placing half-used toilet paper rolls from guest bathrooms in employee restrooms instead of discarding them.



Rescuing Usable Items

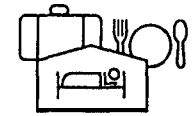
To avoid throwing away usable items, the housekeeping department at Canadian Pacific Hotels & Resorts 840-room Banff Springs hotel and convention center has adopted several new tactics. Instead of removing half-used toilet paper rolls from guest rooms and replacing them with full rolls, the cleaning staff simply places an extra roll in each bathroom. Similarly, instead of discarding half-empty shampoo or bath gel bottles, the hotel sends them to the Salvation Army in nearby Calgary - about six-to-eight cartons' worth each month.

- Give newpapers, shoeshine kits, and showercaps to guests only upon request. To avoid delivering newspapers to guests who don't want them, provide guests with a door hanger that allows them to request the next morning's papers.
- Deliver newspapers to guest rooms without plastic bag wrappings.
- Ž Provide guest rooms with unwrapped, reusable drinking glasses and coffee cups. Check with the local health department about storing glasses upside down on trays, rather than using disposable paper covers.
- Eliminate the use of plastic liners in ice buckets.
- Eliminate the use of paper doilies and paper tray covers,
- Reduce printed information placed in rooms. Condense printed material where possible or designate a special television channel for hotel information.
- Order only as many telephone directories as the number of rooms and phones. Directory distributors often deliver many more copies than are needed.

2. Laundry and Housekeeping

Laundry and Dry Cleaning

- Ask guests whether they would like to have their towels and sheets replaced daily, or whether they want to "help the environment" by reusing them. Besides saving water and energy, reduced laundering will also reduce the use of detergent and bleach. Make sure guest bathrooms have enough towel-rail space to hang wet towels.
- After dry cleaning, return clothes in reusable garment bags to eliminate the need for single-use plastic bags.
- Offer plastic wrap for dry cleaned clothing only upon request.
- Eliminate cardboard backing for laundered shirts.
- Reuse wire clothes hangers from guest dry-cleaning services for guest bathrobes and employee uniforms or return them to vendors.

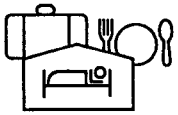


Designating "Green" Rooms

The 5I7-room Westin Bayshore Hotel's program of minimal packaging, food-waste composting, and extensive recycling has helped the Vancouver, British Columbia, hotel reduce the tonnage of waste it sends to the landfill, and thus disposal costs, by 87 percent between 1990 and 1994.

Guests have the option of staying in one of the 75 rooms that the hotel designates as "environmentally friendly" - rooms designed to save water and energy and prevent waste. By installing pump dispensers for shampoo, soap, and lotion in these rooms, The Westin Bayshore has eliminated the need for 82,000 individual plastic bottles annually.

Most of the guests who stay in the rooms the hotel designates environmentally friendly are assigned there by request, but some guests are assigned randomly because of availability. A survey of those staying in the designated rooms found that 87 percent of the guests said they would request these rooms for future visits. Of the 13 percent who said they would not, all were found to have been assigned to the rooms randomly.



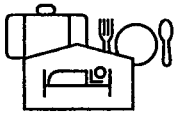
Optional Sheet and Towel Laundering

According to the National Association of Institutional Linen Management, hotel laundry costs range from $3 to $4 per day per room.[13] Patricia Griffin, president of the Green Hotel Association, estimates that hotels can save up to $1.50 per day per room by reminding guests they have the option of choosing not to get freshly laundered sheets and towels each day of their stay.[14]

A number of North American hotels offer optional laundering by placing a special card in each room that asks the guest to decide to either place the towel on the towel-rail for reuse or leave it on the floor or in the shower for replacement. For example, The Westin Bayshore in Vancouver **uses** cards that say "Help Us to Help the Environment," explaining that "minimizing the use of washing detergents will place less stress on our water supply as well as less pollution in our waters."

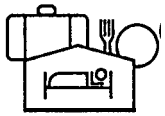
In the fragile ecosystem of the Florida Keys,[15] Cheeca Lodge in Islamorada strives to operate its 26 buildings (203 rooms) in an "environmentally sensitive" manner. By asking guests to indicate whether they **would** like to reuse their bed linens and bath towels, the hotel estimates that it reduces its laundry needs enough to conserve hundreds of gallons of water daily, saving the hotel more than $800 per month. Reduced laundering also cuts detergent use in half, saving $2,000 per month. Including labor expenses, the hotel's total monthly savings reach about $5,000.

At the 507-room Holiday Inn Sunspree Resort in Lake **Buena** Vista, Florida, housekeeping staff changes bedsheets for stayover guests in occupied rooms every three days or upon request instead of daily, saving 482 gallons of detergent chemicals annually. Sheets are changed upon check-out of every guest.



Reusable Baskets for Clean Guest Laundry

The 34l-room Willard Inter-Continental Hotel in Washington, DC, has replaced cardboard boxes and plastic wrapping with linen-lined wicker baskets to return clothes to guest rooms. However, another hotel says that it discontinued the practice because too many baskets disappeared - apparently stolen.



Reusing Hangers

The busy on-site dry-cleaning facility at the Ritz-Carlton in Naples, Florida, serves the hotel's 772 uniformed employees, each with between two and four uniforms, as well as its 463 guest rooms. Until 1992, the hotel did not collect or reuse its wire hangers, and many hangers were discarded after just one use. But when an economic crunch prompted a search for ways to save money, the hotel started collecting hangers for reuse - both from employee locker rooms and from guest floors. Laundry manager Matt Lawton estimates that the hotel now saves 7,000 to 8,000 hangers annually.

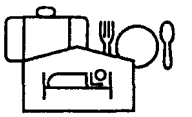
The Boston Park Plaza Hotel & Towers collects more than 21,000 hangers annually from guest rooms and returns the hangers to the hotel's dry cleaning company for reuse.

Resing Textiles

- Convert damaged textiles, such as uniforms and linens, into useful items. For example, it's possible to turn torn bed sheets, towels, and banquet linens into reusable guest-room laundry bags, baby bibs, crib bumper pads, aprons, cleaning rags, and bar covers. Another possibility: repair torn bed linen and reuse it on smaller cots or cribs.
- Replace single-use items with reusable items such as napkins, tablecloths, and hand towels. When they are worn, turn them into cleaning rags.
- Dye stained towels a darker color for reuse at the pool or beach, or as cleaning cloths.
- Extend the useful life of draperies by, rotating them to expose different portions to sunlight.

Cleaning Products

- Buy cleaning products in bulk and in concentrated form, because one large container of product uses less packaging per ounce than several smaller containers. At the same time, order only what can be used before the product expires.
- Install mixing stations in the housekeeping department to reduce spillage. Educate staff on proper mixing of concentrates to avoid waste and save money.
- Fill smaller reusable containers with cleaning products from larger containers.
- Use refillable pump spray bottles that can be reused instead of single-use aerosol cans.
- Buy cleaning products that are biodegradable.
- Buy supplies from vendors who take back the containers in which they ship cleaning materials
- Clean and reuse dustmop heads.
- Use reusable vacuum cleaner bags.



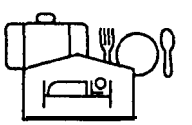
Reusing Worn Linens

By using old towels as cleaning rags, the 1,250-room Trump Taj Mahal Casino Resort in Atlantic City, NJ, saves on both procurement and disposal costs. In January 1995, housekeeping staff started separating worn-out terrycloth towels from towels in good condition. The laundry dyes the worn towels blue and cuts them into smaller pieces, which are then used for cleaning tasks.

Each month, the Ritz-Carlton in Naples, Florida, converts about 150 pounds of worn bath towels into cleaning rags and dishtowels for kitchen staff. The hotel also makes about 800 aprons each year from used table linens.

At L'Hotel in Toronto, retired bed sheets are made into guest laundry bags. These reusable bags replace single-use plastic bags.[16]

The Boston Park Plaza Hotel & Towers has converted old table linens into 135 aprons and 91 scarves for its chefs. Old bedspreads are made into potholders and coffee urn covers.

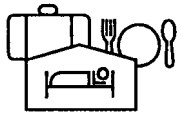


Reusing Detergent Barrels

The 1,206-room Fontainebleau Hilton Resort and Towers in Miami Beach rinses barrels of laundry detergent and cleaning chemicals and uses them as bins for recycling or garbage collection.

Reducing the Use of Toxic Chemicals

- ❑ Minimize the use of products that contain toxic chemicals. The types of products that may pose toxic risks include pesticides, herbicides, bleaches, oven cleaners, drain cleaners, acids, disinfectants, general cleaning chemicals, caustic cleaners, window cleaners, solvents, paints, adhesives, fuels, oils and grease, and hydraulic fluids. Begin by identifying where toxic chemicals are being used and the reason for their use. Review handling, storage, and disposal procedures and compile a record of toxic materials use. Where possible, identify, test, and use environmentally preferable alternatives.
- ❑ With the approval of the hotel's engineer, use a plunger or a snake rather than chemical solutions to remove plumbing obstructions, as long as the hotel's pipes are not in fragile condition. This avoids deleterious effects on waterways from the use of chemicals.
- ❑ Reduce the need for pesticide applications in guest rooms and employee work areas by making these areas less attractive to crawling pests. Remove food containers, garbage, and recycling containers frequently; clean employee break rooms daily; and report cracks around doors and windows to the engineering department.
- ❑ Check labels on room deodorizers for hazardous chemical content. Deodorizers are often used to mask smoke and mildew odors. Reduce the need for these products by: cleaning air conditioner coils and changing air conditioner filters regularly; sealing cracks around windows, doors, and air conditioning units; and operating air conditioners at temperatures recommended by the engineering department.
- ❑ Check buckets, cans, drums, and other chemical containers periodically and replace leaky ones.
- ❑ Use a containment pan at all times to prevent the leaching of unused chemicals, such as cleaning chemicals, oils, grease, and caustic cleaners.
- ❑ Clean chemical leaks and spills immediately.
- ❑ Store unused chemicals in a cool, dry, and well-ventilated place.



Dry Cleaning and Laundry Chemicals

Starting in January 1996, the dry cleaning operation at the Ritz-Carlton Hotel in Naples, Florida, was to begin testing a less toxic synthetic substitute for perchloroethylene. Perchloroethylene, a widely used dry cleaning chemical, is known to be toxic to the nervous system and may also be a human carcinogen.

In its laundry, the hotel is using hydrogen peroxide bleach instead of chlorine on certain fabrics and is considering switching away from chlorine altogether. Once released to the environment, chlorine interacts with naturally occurring organic substances to form organochlorines, complexes that in some cases cause cancer and in other cases may be neurotoxins. Some organochlorines are suspected of disrupting human and wildlife systems that control hormone-related functions.

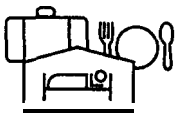
Unlike organochlorines, hydrogen peroxide does not persist over long periods of time in the environment and does not accumulate in organisms. However, hydrogen peroxide may pose other environmental and public health risks due to its biological reactivity. More extensive research is needed to ascertain the extent of any long-term effects of widespread use.

- ❑ Dispose of chemicals according to label instructions.
- ❑ Use rechargeable batteries wherever possible.
- ❑ Collect old alkaline, dry cell, and worn-out rechargeable batteries used in hotel walkie-talkies and pagers at a central collection point and dispose of them in accordance with local requirements. Many municipalities have special rules for disposing of batteries, and some locales have battery collection programs. Batteries may contain toxic chemicals. If they are disposed of with other garbage, they may enter landfills, garbage incinerators, home septic systems, or public sewer systems. From there they can move into air, land, and water, where they may affect public health and the environment.

3. Food and Beverage Service

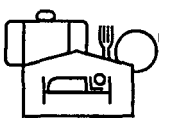
Food Preparation

- ❑ Buy locally grown food, especially organically grown items. This avoids the pollution associated with transportation and pesticides and provides guests with the freshest foods in season.
- ❑ Plan menus so that fresh ingredients are interchangeable among recipes. In this way, produce and other perishable foods can be used up in different recipes - not wasted if guests order less of a particular dish.
- ❑ Reassess portion sizes to minimize the amount of foods that patrons leave on their plates, as current specifications may be unnecessarily wasteful and expensive. Customizing portion sizes may require buying uncut foods (including meat, produce, and other products) rather than buying foods that are already cut-to-size and ready-to-use.
- ❑ To reduce food waste, offer guests the option of ordering half-portions.
- ❑ Prepare smaller portions of precooked foods (pasta, potatoes, vegetables) to reduce the amount later discarded.



Which Chemicals are Toxic?

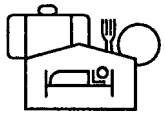
Chemicals regarded as toxic generally are those that scientific studies show may, given sufficient exposure, cause adverse health effects such as poisoning, respiratory problems, cancer, nervous system damage, or birth defects. For the purpose of this report, **INFORM'S** use of the word "toxic" refers to chemicals on the list the US Environmental Protection Agency uses for its annual Toxics Release Inventory (TRI). The list, based on scientific toxicity data, includes any of 622 chemicals or chemical categories.[17] (See Appendix II for information on the chemical components of items typically used in a hotel as well as a list of alternative products.)



Tell It to the Chef

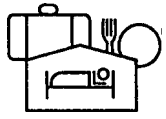
Dining room staff at the 820-room New York Vista hotel help the kitchen staff plan menus and gauge portion sizes by telling chefs when portions are left uneaten.[18]

- ❑ Purchase foods in bulk and store unused portions in airtight reusable food containers. Buying products in the largest quantity possible in one package uses less packaging per ounce than several smaller containers. But buy only what can be used. Overpurchasing can result in spoilage, defeating the purpose of buying in bulk.
- ❑ Ask suppliers to ship goods, such as milk, bread, meats, fish, and produce, in reusable shipping containers that can be returned to the supplier.
- ❑ To reduce the amount of food that must be discarded from salad bars, set up salad bar offerings in smaller containers and replenish them more often.
- ❑ Use scraps left over from food preparation to make soups and stocks for donation.
- ❑ Donate edible, unused food to local charities. More than 100 programs throughout the United States accept prepared food - packaged, prepared, fresh, frozen, or baked - that restaurants and hotels can no longer use. Donor programs deliver food to soup kitchens, homeless shelters, senior citizens' programs, day-care centers, and food pantries.[20] Foodchain, an Atlanta-based national coalition of prepared and perishable food programs, publishes ***Fighting Hunger with Prepared and Perishable Food*** and will advise those interested in starting a program.*'
- ❑ If possible, collect unusable food scraps and arrange to have them picked up by local pig farmers for use as animal feed. First, check with the local health department or cooperative extension office, as some states and municipalities do not allow the feeding of food scraps to swine.
- ❑ Arrange for a renderer to collect and recycle cooking fat, grease, and bones.
- ❑ Install filters that extend the life of deep frying cooking oil. Without filtration, oil becomes contaminated with food particles more quickly.



Buying in Bulk

At the Walt Disney World Resort, food service purchasers are ordering food in larger bulk quantities. Disney World purchasing agents now order some products in six-gallon containers instead of five-gallon containers, eliminating the use of 4,600 containers per year. According to Lodging magazine, mustard that used to come in 24-ounce jars now comes in 48-ounce jars, which means that 6,000 fewer pounds of packaging cartons are needed. And when the Walt Disney World Resort orders tomato paste in 55-gallon drums, the result is that 86,000 fewer cans are used.'"



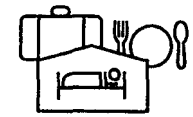
Managing Food Waste: Donating Food

Over a two-year period, Walt Disney World restaurants donated more than 594,000 pounds of leftover food, or 792,000 meals, to Foodchain member Second Helpings, a program of Second Harvest Food of Central Florida, which distributes the food to needy individuals.

Compost kitchen scraps and food waste. Like landscaping waste, the compost resulting from food waste can be used in landscaping as a soil amendment.

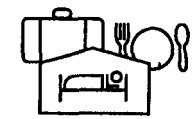
Food Service Items

- ❑ Use reusable plastic lids or reusable and recyclable aluminum foil to cover food in coolers and steam tables.
- ❑ Rinse and reuse pieces of aluminum foil that were used to cover pans of food.
- ❑ Replace individual condiment packages with bulk dispensers in restaurants and employee cafeterias. Review health regulations first; some local codes allow dispensers in employee cafeterias but prohibit their use in public restaurants.
- ❑ Avoid individually wrapped packages of sugar, butter, jam, etc. Use dispensers or small dishes, instead of prepackaged containers.
- ❑ For take-out orders, offer condiments, napkins, and straws upon request instead of allowing customers to help themselves.
- ❑ For employee cafeterias and room service delivery, replace disposable items with washable, reusable plates, trays, and utensils, and reduce unnecessary packaging.
- ❑ Use reusable linen napkins instead of paper for all food service, including employee cafeterias and room service. Where paper must be used, install napkin dispensers and buy smaller sizes.
- ❑ Use washable hats and aprons for kitchen staff instead of disposable paper ones.
- ❑ Use cloth rags and sponges to wipe spills in the kitchen and on dining room tables instead of paper towels. Use stained wash cloths and towels for cleaning.
- ❑ Use spun glass pads for scrubbing pots and pans instead of steel wool scouring pads. This new type of pad comes either soaped or unsoaped. They last longer than steel pads and do not rust.
- ❑ Reduce menu printing costs wherever possible, for example, by reusing menus, eliminating paper inserts, and using boards to post daily specials.



Managing Food Waste: Composting

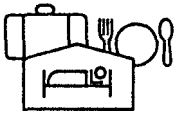
The Westin Bayshore in Vancouver implemented Canada's first on-site hotel food waste composting operation, placing its waste in three 53 gallon plastic containers. But the hotel's waste generation exceeded its composting capacity. As an alternative, the hotel found a contractor to pick up food waste, free of charge, and convert it for sale as potting soil and organic fertilizer.



Shrinking Paper Napkins

Florida's Walt Disney World Resort has reduced the size of paper napkins in dispensers by 25 percent, which has decreased food-related waste by 263,085 pounds annually, ***Lodging*** magazine reports.[22] Even though the new napkins are smaller, folding them differently allows the resort to use the original dispcnscrs, ***Restuurants and Institutions*** reports.[23]

- Recover mistakenly discarded items from the garbage, such as flatware, plates, linen napkins, and towels.
- Install a magnet on food waste containers to recover flatware accidentally thrown away with food waste.[24]
- Inspect food service equipment for leaks and malfunctions and repair or replace as needed.
- Avoid using cellophane wrap for fruit baskets and gifts delivered to guest rooms.



Reducing Food Service Waste at the Saunders Hotel Group

The Saunders Group's Boston Park Plaza Hotel & Towers has reduced its food service waste through a variety of tactics, including:

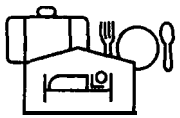
- Replacing all disposable tableware in the employee cafeteria. The cafeteria serves more than 106,000 meals annually with reusable china, glass, and flatware.
- Replacing paper cups for employee coffee breaks with reusable mugs, keeping 5 million paper cups out of landfills annually.
- Placing paper napkins in dispensers in the employee cafeteria, cutting back on their use by 50 percent.
- Switching to bulk food packaging in the hotel's kitchens. This includes using milk and cream dispensers that hold five-gallon packages instead of quart or gallon containers.
- Baking breakfast muffins in-house, saving on packaging.
- Substituting linen napkins and placemats for paper for room service and in the hotel's cafe.

The 143-room Copley Square Hotel has reduced food service waste by:

- Eliminating paper placemats in its Pop's Place restaurant.
- Laminating menus in Pop's Place's restaurant, which previously had printed its menus on paper placemats. Switching to reusable menus eliminates the need for more than 44,000 paper placemats each year.
- Switching from paper to cloth napkins in the hotel's Original Sports Saloon, eliminating 60,000 paper napkins annually.

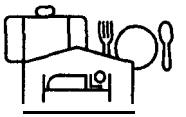
At the 214-room Lenox Hotel, food waste has been reduced by:

- Eliminating individually packaged milk and cream containers.
- Cutting back on butter packaging by whipping homemade butter.
- Banning the use of polystyrene and switching to reusable glasses in the employee cafeteria, saving $2,000 a year.
- Sending food waste to pig farmers.



Changing Menus

Toronto, Canada-based Commonwealth Hospitality Ltd. reduced the annual cost of printing 50,000 menus and thousands of room directories by using folios and binders with laser-printed pages to announce changing information. Now, Commonwealth can reuse the covers and recycle the plain paper, instead of continually replacing glossy materials. Through this strategy, the company only needs to print new menus every other year, instead of with each season. Over two years, printing costs for the menus were about 40 percent lower.



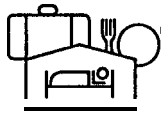
Recovering Discarded Goods

The 2,019-room Hyatt Regency Chicago, a downtown hotel and convention center, has saved thousands of dollars in avoided disposal and purchasing costs by recovering items that were previously discarded. Items recovered from the hotel's garbage in its daily sorting process - including plates, flatware, glasses, and even coffee pots - enabled the hotel to avoid spending more than $26,000 on replacement of these items in 1993.

At one time all hotels had a steward to prevent reusable items from ending up in the garbage - a practice that may soon return to the larger hotels as they realize continued losses.

Beverage Service

- ❑ Use fountains to dispense soda.
- ❑ Offer draft beer.
- ❑ Purchase milk in large (five gallon) plastic dispenser bags, delivered in reusable crates, rather than buying milk by the gallon or in difficult-to-recycle coated cardboard cartons.
- ❑ Serve milk from steel dispensers to decrease use of single-use containers.
- ❑ Use refillable beverage containers, especially for room service and in restaurants and bars, where collection of empty bottles is easily controlled. (See Appendix I for a discussion of refillable bottles.)
- ❑ Replace cocktail napkins with permanent coasters at dining room tables and bars.
- ❑ Avoid using doilies and frilled toothpicks for beverages. Replace toothpicks and disposable cocktail stirrers with reusable plastic stirrers (if approved by local and state health departments).
- ❑ Use reusable metal or nylon coffee filters.



Switching to Draft Beer

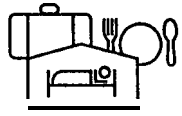
Clyde's, a restaurant in Tyson's Corner, Virginia, and the Premier Ventures restaurant group in Denver both have saved thousands of dollars by switching from selling beer in bottles to selling draft beer. Clyde's no longer serves any beer in bottles. At Premier Ventures restaurants, bottles used to comprise 60 percent of beer sales. Now, beer sold in bottles accounts for 15 percent of beer sales. "It can cost anywhere from $3,000 to $10,000 to retrofit the bar with extra lines to accommodate more draft sales," Phil "Zoom" Roberts, president, told ***Restaurants and Institutions*** magazine. "But with the savings on handling and the fact that draft profits are higher, the switch more than pays for itself."[25]

Attachment B

4. Offices

Avoiding Paper Use

- ❑ Before printing, confirm whether a paper copy is needed.
- ❑ Use electronic mail and voice mail instead of paper copies.
- ❑ Evaluate internal reporting paperwork and eliminate obsolete or unnecessary forms. (Consult with legal and accounting departments before forms are eliminated.)
- ❑ Post office-wide announcements on a bulletin board or in a binder instead of giving a copy to each employee.
- ❑ Store files on reusable computer disks instead of in hard copy form.
- ❑ Eliminate fax cover sheets.



Filing It All Away

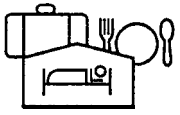
US companies tile 120 billion sheets of paper annually.*"

Preventing Office Paper Waste

- To reduce paper use, route documents electronically when information must be shared internally.
- Edit and proofread documents on computer screens before printing.
- Prepare documents in double-sided and single-spaced formats.
- Adjust document margins to avoid pages with little text.
- Load laser printer paper trays with paper already used on one side for drafts and internal memos.
- Use paper already used on one side for drafts and notes.
- Program photocopying machines to automatically make double-sided copies. Post signs by photocopiers to instruct and remind staff.
- Make only as many copies as you need.
- Set up central filing systems to avoid filing identical documents in individual filing cabinets.
- Use small pieces of paper for short memos.

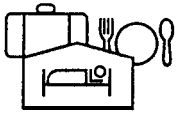
Publications and Mailings

- Eliminate subscriptions to newspapers and magazines that go unread. Circulate and share documents, publications, and telephone books.
- Reduce unwanted direct mail by asking vendors to remove your name from their mailing lists. Ask vendors not to sell or trade your name to other direct mail companies,
- For hotel mailings, target direct-mail recipients as precisely as possible to reduce the number of pieces sent. Eliminate duplication by frequently updating mailing lists.
- Request address corrections on correspondence. You will save postage and labor costs as well.
- Send bills in two-way envelopes.



Using Fewer Business Forms

Hotelier magazine reports that, at Toronto-based Commonwealth Hospitality, Ltd., executive vice president Manfred Bertele has reduced the number of business forms the company uses. After taking an inventory, Bertele found that the company had 450 different forms. He assembled the collection of forms, laid it out in a ballroom, and invited a group of general managers to tell him which ones they used. If a form was needed, he asked if it could be replicated on the hotel's computer system. If a form was not needed, it was discontinued. In one day, the group eliminated 200 forms, and Bertele says he never heard a complaint.[27]



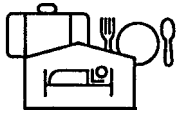
Cutting Office Paper Waste

New York City's 242-room Peninsula Hotel found that its staff's need to communicate with Peninsula Hotels in five other countries was generating a lot of paper waste. A new interdepartmental and inter-hotel E-mail system has reduced waste significantly, saving on paper procurement costs as well.

According to public relations director Helen Choi, staff members now check their computers each day to read interdepartmental correspondence. Employees also review reports on-line as much as possible, and the hotel has cut back its daily reports for senior managers from 53 pages to eight pages.[28] International faxing costs have also been reduced as documents can be sent overseas electronically at the touch of a button - without printing a paper copy first.

Office Supplies and Equipment

- ❑ Buy reusable items instead of single-use items, such as:
  - refillable pens and pencils
  - refillable laser toner printer cartridges
  - multistrike typewriter ribbons
  - envelopes with metal clasps
  - erasable wall calendars.
- ❑ Buy sturdy, long-lasting office supplies such as staplers, scissors, file holders, and book ends.
- ❑ Adopt strategies that promote paper waste reduction, such as buying or leasing:
  - copying machines and laser printers that can make double-sided copies
  - computer software that permits faxing directly from a computer to avoid unnecessary print-outs
  - electronic mail systems
  - fax machines that use plain paper. (Plain paper faxes are preferable, because otherwise most faxed documents received on thermal paper are photocopied and the thermal paper fax is then discarded. Thermal fax paper is not recyclable.)
- ❑ Reuse file folders.
- ❑ Use interoffice envelopes and folders that can be used many times for routing in-house mail and correspondence.



A Variety of Office Strategies

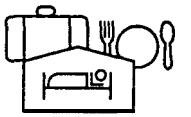
The administrative offices of the Boston Park Plaza Hotel & Towers have adopted a number of material-saving strategies:

- Creating internal memo pads out of leftover computer paper
- Purchasing new copying machines for double-sided copying
- Painting old desks and refurbishing old file cabinets for reuse
- Collecting shredded paper to use in place of polystyrene pellets or bubble wrap for packaging and shipping.

At the Park Plaza's affiliate, the Lenox, administrative staff return laser toner cartridges to the manufacturer to be refilled, then buy them back for half the price of new cartridges.

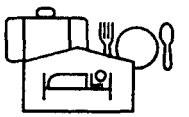
5. Conference Facilities

- Develop a brochure for conference planners that encourages exhibitors and attendees to:
  - print their materials on both sides of the page
  - produce printed materials in limited quantities with only a 10-to-15 percent buffer
  - instead of handing out large conference packets, offer conference literature on a table so attendees can take only those items they wish to keep
  - take back excess promotional materials
  - use paper compatible with the hotel's recycling program
- Offer incentives such as reduced disposal fees or faster breakdown services to convention exhibitors who minimize leftovers and take back excess materials.
- Use reusable cloth drapes or 'skirts on display booths rather than single-use varieties.
- Reuse pens, pencils, and name tag holders. Place clearly marked collection boxes at conference room exits and post signs to inform conference attendees of the policy.
- Supply note pads with limited sheets in conference areas and guest rooms. After conferences, use the blank portions of the pads as scrap paper in hotel offices. Or donate blank portions of pads to schools or local charities.
- Provide reusable drinking glasses and coffee cups.
- To avoid the use of individual cream and sugar packets, provide cream for coffee or tea in insulated or chilled pitchers and provide sugar in dispensers.
- For special events, ask florists to rent potted floral arrangements that can be returned after events. If unable to rent them, reuse the purchased ones for other hotel events or place them in lobby or food service areas.
- For banquets, holiday celebrations, and other catered functions, encourage guests and employees to take table decorations home. Or reuse them in other areas of the hotel.



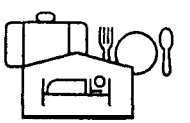
Conferences and Waste

Conferences and conventions are among the largest producers of solid waste. Conde Nast Traveler reports that one ton of paper - about 250,000 sheets - was collected at a 1992 computer convention attended by 1,300 participants.[29]



Bringing It All Back Home

The 820-room New York Vista in Manhattan asks conference exhibitors to assume responsibility for removing excess materials from the hotel, such as excess brochures and promotional materials that would be thrown away by the hotel. This reduces disposal costs for the hotel and encourages exhibitors to minimize waste by better estimating the amount of materials they will need.[30]



Shrinking Notepads

Hotel Macklowe in New York City replaced SO-page notepads for conferences with 20-page notepads, saving $2,100 annual1y.[31]

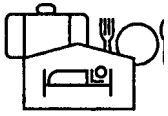
6. Maintenance

Equipment

- ❑ Develop a preventive maintenance program and ensure that equipment is operating efficiently.
- ❑ Operate and maintain equipment according to manufacturer's recommendations to extend equipment life and maximize productivity.
- ❑ Use high-mileage tires on vehicles.
- ❑ Keep tires filled to proper air pressure, thereby maximizing their life.
- ❑ Have truck and passenger vehicle tires retreaded, instead of purchasing new ones.
- ❑ Use re-refined lubricating oil.
- ❑ Install reusable furnace and air conditioner filters. Reusable filters have removable material that can be washed and returned to the frame for further use.

Pain t

- ❑ Purchase paint in the amount that is needed at the time. Buy paint for touch-ups in small quantities, otherwise it often ends up discarded later.
- ❑ Instead of oil-based paint, use less toxic water-based paint.
- ❑ Use leftover paint for other projects. Remix and reuse paint where possible. Where no use can be found on-site, donate paint to charitable groups.
- ❑ When discarding paints, review disposal practices and identify environmentally sound solutions. Paints are usually characterized as hazardous waste and as such require special disposal procedures. Contact your local solid waste office for details on disposal options. (See Appendix II, Less Toxic Options in Choosing Products.)



Reducing Toxic Waste at the Walt Disney World Resort

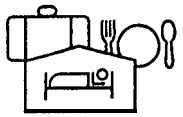
Instead of disposing of plastic herbicide and pesticide containers in an expensive hazardous waste landfill, the groundskeeping staff now triple-rinses these containers in a closed operation, then adds this water to the concentrated chemicals to make new solutions. Staff members are able to recycle the containers as regular plastic waste.

7. Landscaping

- Leave grass clippings on the lawn or mulch grass and leaves. If the lawn is cut regularly, clippings should be small enough to fall between the standing blades; as they decompose they become a good fertilizer. It is unlikely that anyone will notice that clippings have not been raked and bagged.
- Compost yard waste on site. Check local regulations: in some locales, it's possible to compost some food wastes as well.
- Offer live plants slated for replacement to employees or donate them.
- Practice xeriscaping. Xeriscaping includes growing drought-tolerant plants in desert areas, growing lawns only where practical - thereby reducing grass clippings - and planting lower-maintenance shrubs and bushes that require less-frequent cutting and pruning, generating smaller quantities of yard waste.

Ž Return plastic seedling pots to nurseries.

- Use large tree limbs for firewood or donate them.
- After pruning trees, chop smaller pieces of wood into chips and use as mulch.
- Minimize the use of toxic pesticides. An alternative is to practice integrated pest management, which controls pests through the judicious use of pesticides in combination with other techniques, including biological and mechanical methods.
- Minimize the use of toxic herbicides and fertilizers.



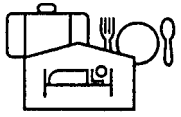
Using Organic Materials

Instead of discarding indoor and outdoor plants, the Hyatt Regency in Chicago delivered about 400 of them to a nonprotit organization that distributes plants to schools.

At an on-site facility, the Walt Disney World Resort composts 40-50 cubic yards of sewage sludge, food, and other organic wastes daily. The hotels use the resulting compost for their own landscaping activities or sell it to citrus growers.

The landscaping contractor for Holiday Inn's Sunspree Resort in Lake Buena Vista, Florida, carts 216 cubic yards of grass clippings and branches annually to an off-site composting facility. The composting operation turns this landscaping material into 14.5 cubic yards of compost which it then provides for the resort as needed - free of charge.

The 342-room Chateau Whistler in Whistler, British Columbia, used to give its live Christmas trees to employees to plant on their own properties. Now the hotel plants the trees on its golf course.



Non-Toxic Approaches to Gardens and Grounds

The 300-room Hotel Newfoundland in St. John's eliminated the use of pesticides in the hotel's indoor atrium by using integrated pest management (IPM), a system which introduces "good" microorganisms to eat the "bad" ones responsible for infestation. After eating the undesirable pest population, the worker bugs have nothing to feed on and die - leaving the plants pest-free. By avoiding the use of pesticides, IPM reduces indoor air pollution, thereby lowering the risks to staff and guests of exposure to toxic chemicals.

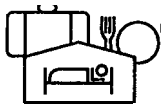
The Chateau Whistler has taken several initiatives to reduce its release of toxic substances to the local environment. On the hotel's golf course, the groundskeeping department is experimenting with a vegetable-based hydraulic oil for turf maintenance equipment. This reduces the possibility of environmental contamination in the event of an accident or spill. To reduce the need for commercial pesticides, the hotel uses ladybugs to control aphids in its rose garden.

8. Remodeling and Construction

- ❑ When remodeling or replacing items, such as carpeting, use the older items in another part of the property or donate them to charity.
- ❑ Incorporate used and recycled items in construction projects, including building materials, cabinetry, doors, and fixtures. (See Appendix III for a discussion of office design and construction that takes into account natural resource conservation, reuse of materials, minimal use of materials containing toxic substances, and energy efficiency.)
- ❑ If storage room permits, keep excess materials on hand for repair projects.
- ❑ Refinish and reupholster damaged and out-of-style furniture.
- ❑ Dye linens and carpet to match renovated facilities, instead of purchasing new items or redecorating from scratch.

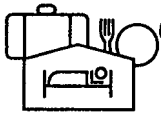
Building Specifications

- ❑ In evaluating building plans, give careful consideration to efficient use of materials.
- ❑ To avoid overbuying, establish strict estimating procedures to ensure that materials are purchased in correct quantities. Order materials to be consistent with room dimensions. For example, wallboard is available in a number of stock sizes and can be ordered to fit custom designs.
- ❑ Ask vendors to help identify building materials with reduced toxic content.
- ❑ Use kiln-dried wood lumber to reduce waste from on-site war-page and shrinkage.
- ❑ Use steel studs for framing rather than wood. Steel studs are made from recycled steel and are recyclable. In addition, they last longer than wood, as they do not rot and are not susceptible to termite damage.



New Use for Old Fixtures

During its renovation, the Copley Square Hotel avoided sending old toilets to landfills by sending them instead to a company that turned them into roadfill. Engineers sold old metal fixtures to a recycler and used the proceeds to buy a table saw for their department.



Harmony: A luxurious Model of Sustainability

Is it possible to build a luxury resort from recycled materials, run it on renewable energy, and have minimal impact on the surrounding island ecosystem? This is what environmentally aware developer Stanley Selengut sought when he created Harmony: 12 apartments set in the lush vegetation of St. John in the US Virgin Islands. After the success of his Maho Bay Campgrounds, a community of tent-cottages on the same island, Mr. Selengut decided to expand into the luxury vacation market, while maintaining his goal of preserving the delicate ecology of this Caribbean island.

The construction of Harmony included the following features:

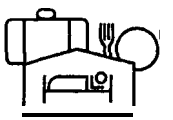
- Floor tiles made from scrap clay, countertops from recycled glass, and bathroom wall tiles made from burnt-out lightbulbs
- Remanufactured wood fiber interior doors
- Interior wallboard made from gypsum and recycled newsprint
- Carpeting made from recycled plastic bottles and doormats from used tires
- Cabinets free of formaldehyde adhesives
- Elevated walkways built of “lumber” made from recycled plastic and sawdust
- A shared cornposting unit that converts food waste, newspaper, and cardboard into garden mulch.

Harmony also incorporates other principles of sustainability, such as the exclusive use of solar and wind power for electricity, the installation of water-conserving bathroom fixtures, and the use of low-voltage appliances.

- ❑ Reduce the loss of building materials to weather and other damage. For example, use plastic to cover bags of mortar, stack blocks and bricks carefully to keep them from getting lost in the mud, and keep lumber covered and off the ground.[32]
- ❑ Centralize wood cutting to make maximum use of off-cuts. This reduces the need to cut full-length lumber for small pieces.
- ❑ Use standard size building materials (such as eight-foot lengths) to reduce non-standard size off-cuts of lumber and wallboard.
- ❑ Ask suppliers to take back or buy back unusable or rejected materials.
- ❑ Ask suppliers to remove packaging before shipping materials to the work site, to wrap materials in reusable blankets, and to backhaul shipping containers and pallets.
- ❑ To give contractors an incentive to produce less waste, require them to include the cost of removing construction waste in their bids.[33]
- ❑ Use carpet tacks instead of floor-covering adhesives, which usually contain toxic ingredients.
- ❑ Use reclaimed (remixed) latex (water-based) paints.
- ❑ Reuse broken concrete for erosion control.[34]

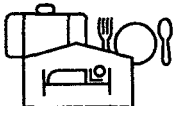
9. Purchasing

- ❑ Review buying habits and purchase only what is needed.
- ❑ Chart the shelf life of items and purchase only when the item is needed. This reduces spoilage.
- ❑ Buy for quality and durability, simplicity and repairability.



A Message for Vendors

According to a 1992 University of Florida hotel and motel survey, 99 percent of the general managers surveyed indicated they would purchase "environmentally friendly" products if they were available from their vendors.[35]



Initiatives to Reduce and Reuse Packaging

in a letter sent to all of its suppliers, the purchasing department at The Westin Bayshore in Vancouver asked vendors to participate in Westin's program to reduce packaging waste. The letter asked companies to submit cradle-to-grave analyses of the environmental effects of their products. According to Monica Hayes, the hotel's public relations director, about 75 to 80 percent of the suppliers rallied to the challenge by dropping additional packaging, shipping their products in reusable containers, or taking back pallets and extra cardboard.

To reduce packaging waste, the Inter-Continental chain of hotels sends a mailing to all suppliers, encouraging them to cut back on packaging. At the 341-room Willard Inter-Continental in Washington, materials manager Richard Kline describes an "amazing response" to the mailing. Suppliers' current practices include:

- Eliminating the non-recyclable, foil-embossed box "gift packaging" of liquor during the holiday season.
- Packing produce and fish in recyclable cardboard or wooden boxes instead of in single-use polystyrene containers.
- Collecting and reusing shipping pallets. The hotel no longer has to pay to have pallets carted away.
- Cushioning overseas shipments in organic, water-soluble pellets instead of plastic bubblewrap or polystyrene pellets.

The Hyatt Regency in Chicago asked its three major food suppliers to take back their wooden pallets. The suppliers now retrieve about 20-25 pallets each day for reuse, free of charge, thus conserving hotel staff time in handling the pallets.

Containers used for chemical products, such as detergents, cleaning fluids, and deodorizers, take up a lot of the volume in a hotel's waste stream. Instead of discarding these containers, the 300-room Dadeland Marriot in Miami has its suppliers take them back for reuse. The service is free and enables the hotel to reduce its disposal costs.

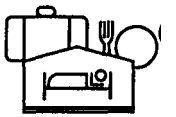
The receiving department at the Fontainbleau Hilton Resort and Towers in Miami Beach collects polystyrene packing peanuts from incoming shipments and uses them in the mailroom or drops them off at a local mail service center.

Changing purchasing practices

- ❑ Establish standards or guidelines for what is purchased.
- ❑ Work with vendors to procure products that promote waste prevention. Vendors may be able to change products and packaging to reduce the waste the hotel must manage. For example, ask food service vendors if they can deliver items in reusable shipping containers.
- ❑ Notify vendors of your efforts to obtain products and services that have less impact on the environment. Ask vendors about their products and practices; patronize suppliers who have made changes in products and packaging.
- ❑ Combine supply orders from various departments. More packaging waste is created with multiple smaller orders. Also, hotels that make purchases on a decentralized basis cannot benefit from volume purchasing discounts.
- ❑ Rent items or equipment that are rarely used, rather than buying them.
- ❑ Repair items rather than purchasing new ones.
- ❑ Buy or lease used or remanufactured furniture, fixtures, and equipment. Typical remanufacturing operations performed by suppliers are replacement of worn parts, refinishing of metal or wooden surfaces, repair of scratches, dents, and holes, and reupholstering of cushions. Extending the life of furniture, fixtures, and equipment through remanufacturing reduces the rate at which they are discarded as waste.
- ❑ Buy products with recycled content to help conserve natural resources.

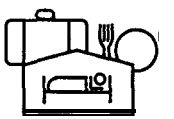
Choosing Products

- ❑ Where necessary, pay a little more and buy reusable, refillable, durable, and repairable products and equipment. Over the useful life of the item, buying for durability and reuse will save money; keeping materials in use longer will generate less waste to be managed.



Using Fewer Paper Towels

The Copley Square Hotel reduced paper towel use in the hotel's public bathrooms by installing a plastic dam to allow only one towel to be dispensed at a time and by purchasing more absorbent recycled paper towels.



Remanufactured Mattresses

A number of hotels in the Baltimore area have their mattresses remanufactured. The cost of the remanufactured mattresses is about one-third the price of buying new mattresses, and the mattresses are rebuilt to the original manufacturer's specifications.[36]

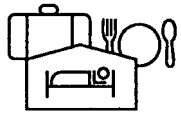
Donating Used Goods

The Boston Park Plaza Hotel & Towers donates used furniture, linens, and blankets to local shelters, including 2,700 pillows the hotel donated to a home for battered women. The Lenox, also in Boston, donated 300 mattresses and bedsprings to homeless shelters, lowering waste disposal costs by $1,000 and conserving 400 cubic yards of landfill space.

- ❑ Negotiate for longer and more comprehensive warranties and service contracts when purchasing durable products.
- ❑ Instead of buying new mattresses, have older ones remanufactured. This process reuses the steel frame and structural sections of the mattress, while replacing the cushioning and cloth sections.
- ❑ Purchase sheets with a high thread count for longer wear.
- ❑ Provide reusable mugs for staff instead of disposable paper or polystyrene cups.
- ❑ Donate items to charitable organizations for reuse when purchasing new items. Donations could include linens, blankets, and old curtains that are no longer being used, but are still in good condition. Usable goods may also include china and glassware, furniture, lamps, uniforms, and lost-and-found items.
- ❑ For toxic materials, review whether their use is necessary, how frequently they are used, storage instructions, container disposal, recyclability, and reuse options. (Refer to manufacturer-provided Material Safety Data Sheets for information on exposure, hazards, and health issues associated with the product.) Look for less-toxic alternatives.
- ❑ Replace disposable batteries with rechargeable batteries in pagers, walkie-talkies, radios, calculators and flashlights. This reduces the amount of lead acid batteries in landfills (lead is the leading toxic substance in landfills).

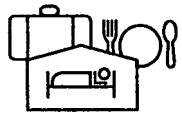
Packaging

- ❑ Choose packages that use less material. Avoid those that use several layers of packaging when fewer would do.
- ❑ Certain industries can tailor their packaging, in ways specific to that industry, to reduce overall packaging use. Ask vendors which packaging options are available to you. For example, beer can be packaged in kegs, in bottles - either refillable or single-use - or in cans; in flats or in boxes; with plastic collars or without; and with or without stretchwrap, among other options. Analyze the waste implications of each option and find out if your vendors can package supplies differently.



New Wine in Old Bottles

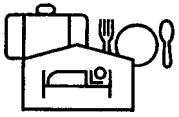
The Four Seasons Clift Hotel in San Francisco has its wine bottles picked up three times a week by Richmond Environmental Action (REA), which then sells the bottles to Encore!, a company based in nearby Richmond. According to ***Hotel & Motel Management*** magazine, Encore! pays REA 84 cents a case for the wine bottles and then washes, sorts, and sells the bottles to wineries for refilling.[37]



Shipping Cases: Return for Reuse

The International Hotels Environment Initiative reports that the Tamanaco Inter-Continental Caracas retrieves empty soap cases and returns them to the supplier for reuse. The hotel receives a rebate for each case it retrieves, leading to a potential annual savings of $8,400. The hotel gives an award to the staff group that collects the largest number of cases.[38]

- ❑ Buy products in the largest quantity possible in one package. One large container of product utilizes less packaging per ounce than several smaller containers. Ordering in bulk for items such as cleaning products, food products, and office supplies reduces packaging waste and saves time, energy, and money.
- ❑ Ask vendors to increase the case size of certain items so that fewer cases are needed for the same number of items.
- ❑ Work with vendors to schedule deliveries so that supplies can be immediately unpacked and packing materials returned to suppliers for reuse.
- ❑ Ask suppliers to take back shipping pallets. If they cannot, reuse them on site or sell or donate them.
- ❑ Reuse packing materials, such as boxes, shipping peanuts, and bubble wrap for outgoing shipments. Or make them available to a local mailing firm.



Walt Disney World Resort: Comprehensive Packaging Reuse

To accommodate the flow of visitors to its three theme parks - the Magic Kingdom, Epcot Center, and Disney-MGM Studios - the Walt Disney World Resort operates 13 hotels (nearly 20,000 rooms) and leases land to five others on its 43-square-mile resort. In seeking to minimize the heavy environmental toll of such a huge operation, the Walt Disney World Resort has developed a comprehensive source reduction and recycling policy. Reducing packaging waste is a key part of this policy. Efforts include:

- Returning containers to suppliers for reuse - for example, sending plastic seedling pots back to nurseries for reuse.
- Establishing a three-tier reuse policy for shipping pallets. Suppliers take back reusable pallets free of charge; a private company repairs damaged pallets and sells them back to suppliers; and Disney converts extremely damaged pallets into wood chips for its on-site composting operation.
- Returning gel packing material to manufacturers. The resort also shreds paper products and distributes the material to gift shops, which keeps eight tons of packaging waste out of the waste stream each year.
- Reusing empty cardboard boxes to package lost-and-found items for mailing back to guests.
- Developing a reusable shipping container procedure with vendors - for example, returning bakery boxes or cartons. (See Appendix I for a discussion of reusable shipping containers.)

III. Putting It All Together

A comprehensive waste prevention program can offer businesses real opportunities on a variety of fronts. But waste prevention doesn't implement itself. Pulling together an effective program requires the enthusiastic involvement of many people in many areas of a hotel or motel. That, in turn requires educating employees so they understand why waste prevention matters. It may also ential sharing waste prevention ideas with guests - many of whom appreciate steps taken to help the environment.

This section describes the steps needed to create a successful waste prevention program; it repeats some of what has already been discussed. These steps can be used by any or all of the nine departments of a hospitality operation discussed in this report.

A Step-by-Step Guide

1. Gain cooperation of management, stuff, vendors, and guests

- ❑ Prepare and distribute a written policy or mission statement to managers, staff, vendors, and guests that highlights facility-wide environmental values and resource conservation goals.
- ❑ Establish property-wide and departmental waste prevention guidelines.
- ❑ Create a task force representing managers and staff responsible for food services, housekeeping and facility maintenance, and purchasing to identify and implement waste prevention strategies property-wide.

II. Assess *current purchasing practices, materials use patterns, and waste generation trends*

To explore the role purchasing can play in waste prevention, each purchasing agent or general manager could begin by asking, for each item delivered, why do we have this? If an item is not deemed essential, why buy it? If it is needed, does the product chosen make the most economical use of materials and offer the least possible toxicity? Does it cause harm to the environment (for example, does it contain heavy metals like cadmium and chromium)? Do vendors sell less harmful alternatives?

- ❑ Review buying habits and purchase only what is needed.
- ❑ Chart the shelf life of items and purchase only when the item is needed.
- ❑ Buy for quality and durability, simplicity and reparability.

Assessing Purchasing Decisions

- ❑ Track potential waste from its points of origin by examining purchasing policies and practices and reviewing purchasing records to identify buying trends over time. Determine what is purchased and in what quantities.
- ❑ Assess criteria currently used for purchasing materials and whether criteria favor longer-lasting, repairable, reusable, and less-toxic products with long-term warranties.
- ❑ Identify where purchased materials are stored.

Some questions to ask:

- ❑ Do current policies pose obstacles to preventing waste? Least-cost buying systems usually discourage the purchase of more durable, longer-lasting products if their initial cost is higher, even though such products may save money in the long run.
- ❑ Do current policies forbid the purchase of used equipment?
- ❑ Are purchasing decisions made by a centralized office with strong clout with vendors, or do individual departments place their own orders for goods and services?
- ❑ What kinds of shipping materials are used in transporting incoming materials? Can pallets and shipping containers be sent back to the vendor for reuse, or can they be reused or used for outgoing mailings or shipments? Can purchasers require vendors to ship goods in reusable shipping containers?
- ❑ Are products purchased in bulk to reduce packaging waste?
- ❑ Does the property have a policy aimed at buying products that pose the least toxic risk, including such product categories as cleaning materials, pesticides and fertilizers used on grounds, and paints and other building materials?

Understanding how materials and equipment are used

- ❑ Conduct visual inspections throughout the property, including guest rooms, restaurants, banquet rooms, offices, physical plant facilities, grounds, and shipping docks.
- ❑ Interview staff in each area to learn how materials are used on a day-to-day basis.

Some questions to ask:

- ❑ Do current practices act as disincentives to reducing materials use and preventing waste? For example, do restaurant buffets operate on an all-you-can-eat basis? Do guest computer centers offer unlimited free printing?
- ❑ Are computers networked to allow for electronic communication?
- ❑ Do food services encourage guests and staff to use reusable as opposed to single-use dinnerware and beverage containers?
- ❑ Do kitchens provide separate bins for fruit and vegetable waste that can be composted?
- ❑ Are grass clippings bagged, or mulched and left on the lawn?
- ❑ Does the property have a materials exchange center for employees, for the public, or for other businesses for the exchange of equipment, furniture, office supplies, magazines, and other products and materials? If not, can the property work with a third party that operates such a center?
- ❑ Do internal regulations preclude the donation of still-usable but unwanted materials and products?

Examining the Waste Stream

- ❑ Conduct a waste audit to discover what materials are discarded as waste or for recycling, and in what quantities.
- ❑ Sort and weigh representative samples in various locations according to product and package type.
- ❑ Examine purchasing records to determine what is bought, when, and in what quantities.
- ❑ Examine waste-hauling records to assess weight and/or volume of waste.
- ❑ Assemble waste composition data into categories of products and packaging to help identify major sources of waste.

Some questions to ask:

- ❑ What materials or products are found most frequently in waste? How do quantities vary from one part of the property to another?
- ❑ Are materials or products that are still useful winding up in the trash or set out for recycling? If so, are there ways to use them more efficiently or to reuse them?
- ❑ Are items that could be recycled, but not reused, ending up in the trash?
- ❑ What items in the trash are difficult to recycle?
- ❑ What items in the trash contribute to pollution during the disposal process, such as batteries or computer chips?
- ❑ Which items are found in waste bins throughout the year and which are season-specific?

III. Create An Action Plan

- ❑ Create an action **plan** that targets different materials and each of the nine different property departments discussed in this report. Within each department, estimate the potential for preventing waste, saving on disposal costs, and saving on procurement and operational costs, such as the cost of labor involved in handling waste.
- ❑ Create a set of purchasing guidelines that give preference to durable, repairable, reused, reusable, less toxic, and minimally packaged goods.
- ❑ Work with vendors to inform them of the property's purchasing policy and guidelines. Ask for vendors' cooperation in preventing waste.
- ❑ Require all departments to meet property-wide purchasing standards.
- ❑ Monitor and evaluate all purchasing by the property.

Creating guidelines for use and reuse

- ❑ Require double-sided copying at photocopying centers and within individual departments.
- ❑ Create reuse programs for equipment, furniture, office supplies, clothing, and shipping containers.
- ❑ Start on-property cornposting or vermicomposting programs.
- ❑ Identify policies, local or state regulations, or recycling programs that may conflict with waste prevention goals and find ways of resolving those conflicts.

Establishing waste prevention funding mechanisms

- ❑ Provide funds to cover investments in equipment or supplies that facilitate waste prevention and staff costs related to pilot programs, research, education, and program implementation.

Publicizing and promoting waste prevention

- ❑ Include information on the property's waste prevention strategies in guest room materials.
- ❑ Use posters and other art work to further communicate waste prevention themes.
- ❑ Form task force groups to explain waste prevention issues to other staff.
- ❑ Use contests and awards to encourage departmental waste prevention initiatives by staff.
- ❑ Contact other hotel and motel managers to learn what they're doing to prevent waste.
- ❑ Use local newspapers and radio and television stations as forums for discussing waste prevention.

IV: Monitor and Evaluate the Progress of Waste Prevention Programs

- ❑ Determine cost savings resulting from changes in procurement and from avoided disposal costs and communicate results.
- ❑ Establish systems for measuring the amount of waste reduced, both by weight and by volume.

Endnotes

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Attachment B

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Appendix I. Reuse Options: Refilling Beverage Bottles and Reusing Shipping Containers

Refillable Beverage Containers

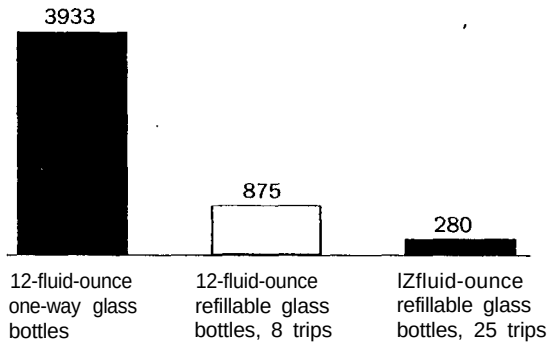
Hotel and motel operators can choose from a wide variety of options when they purchase and dispense beverages. For example, beer can be packaged in kegs, cans, or bottles. Bottles are either intended to be reusable or to be used just once, after which they are disposed of or recycled; bottles may be packaged in flats or in boxes, with plastic collars or without, and with or without stretchwrap. Hotel bars and restaurants may serve beverages in reusable glasses, in single-use plastic cups, or in the original bottles or cans.

Discarding beer and soft drink containers after just one use is a relatively new concept. Before World War II, nearly all packaged beer and soft drinks were sold in refillable glass bottles meant to be used as many as 50 times. Today, only about 6 percent of packaged beer and soft drinks are sold in refillable bottles, Yet, refillable bottles are gaining attention once again, this time as a possible strategy for preventing the generation of solid waste. A bottle that is filled 20 times eliminates the need for making 19 more bottles, avoiding not only the need to dispose of those 19 containers but avoiding also the environmental effects of materials extraction, processing, manufacturing, distribution, and recycling.

INFORM'S report, ***Case Reopened: Reassessing Refillable Bottles,*** identifies several ways in which refilling bottles and recycling bottles and cans can reduce the toll on the environment, not only by reducing solid waste but also by reducing energy use and air and water pollution. If bottles are refilled enough times, these economic and environmental benefits more than outweigh refillable bottles' apparent drawbacks: their greater weight and use of more material (to withstand additional handling), their washing requirements, and the need to transport them between consumers, retailers, and beverage makers.

The environmental advantages of refilling depend on the number of trips a refillable bottle makes (the bottle's trippage). The obstacles to achieving high trippage arise from the lack of a collection and refilling infrastructure, not from any physical limitation of the bottles. Today's refillable beer, soft drink, and milk bottles can withstand at least 25 trips, which greatly reduces the amount of material used per trip, as shown in Table I- 1, Refillable glass bottles weighing 10.5 ounces and making 25 trips use 93 percent less glass (measured in weight) and require handling 96 percent fewer bottles as solid waste than one-way bottles weighing 5.9 ounces that deliver the same amount of beverage. Even at 8 trips, refillables use 78 percent less glass than one-way glass bottles delivering the same amount of beverage. Similar benefits are found in energy use, water use, and air and water pollution.

Table I-l. Comparison of glass (in pounds) used in refillable and one-way bottles to deliver 1000 gallons of beer in 12-fluid-ounce bottles



Source: INFORM

Restaurants, bars, and hotels provide some of the most common settings for the use of refillable bottles in the United States today. When beverages are bought or consumed on the spot (on-premise sales), hotel or restaurant staff can separate bottles from waste immediately, simplifying the process of collecting bottles. The consumer is not responsible for returns.

Sales in on-premise settings account for about 30 percent of all beer sold in the United States; this includes both packaged and draught beer. These on-premise settings traditionally have been the largest market for beer sold in refillable bottles. Today, the leading US brewing companies still package 5-10 percent of their beer in refillable bottles, most of that intended for on-premise consumption.[37]

Cost may be one reason why hotels purchase beer in refillable bottles. Packaging is the single largest cost in making and distributing beer and soft drinks. Brewing companies save money on bottles by refilling them, and they are able to pass on these savings to their customers.

Refilling as a waste prevention option encompasses more than beer and soda bottles. Some dairies offer milk and even orange juice in refillable bottles, usually made of heavy-duty refillable polycarbonate (Lexan®) plastic, and bottled water companies sell water in five-gallon refillable polycarbonate bottles. And refilling bottles at beverage plants is just one form of refilling. Fountain soda dispensers and draft beer kegs also offer excellent opportunities to refill.

Reusable Shipping Containers

US manufacturers produced 25 billion corrugated boxes in 1990 - almost 100 boxes for every person. They are the largest component of a hotel or motel's waste stream.

Packaging in general, and corrugated containers in particular, comprise a significant portion of the national waste stream as well. Corrugated boxes accounted for 12.2 percent of the national municipal waste stream, contributing 24 million tons of waste, or about 188 pounds for every US resident. Packaging on the whole comprises nearly one-third of the waste stream. What should be done with all of this packaging waste?

Recycling has grown in popularity over the last decade and is an important way of recognizing and recovering the value of the natural resources contained within discarded products. But recycling does not address several crucial questions: Do we need all these boxes in the first place? How much material does a packaging system need to accomplish its purposes? How is it possible to reduce the overall generation of packaging waste?

One strategy for preventing packaging waste is relying on reusable shipping containers. Reusing containers can lead to a dramatic reduction in solid waste generation, As shown in **INFORM'S** study, ***Delivering the Goods: Benefits*** *of* ***Reusable Shipping Containers,*** over the course of its lifetime, a 2-cubic foot plastic reusable shipping container weighing 5.5 pounds and making 250 trips will replace 250 1.5 pound single-use corrugated boxes weighing a total of 375 pounds (Table I-2). Single-use containers will generate 98.5 percent more waste measured in weight than the reusable container to deliver the same quantity of goods. (5.5 pounds versus 375 pounds).

Table I-2. Comparing number of boxes, weight of box; and total weight of box material used to make 1 million shipments of equal volume in one-way and reusable corrugated boxes and reusable plastic boxes

Box material and number of times used	Number of boxes used for 1 million shipments (thousands)	Weight of box (pounds)	Total weight of box material used per million shipments (tons)
One-way corrugated, one time	1,000	1.5	750
One-way corrugated, two times	500	1.5	375
Reusable corrugated, 5 times	200	2.2	220
Reusable plastic, 250 times	4	5.5	11

Source: INFORM

Reusing a container means that less material is needed to manufacture containers, and there will be less material requiring recycling and disposal. Reuse of packaging can also save money for companies that either ship or receive products by reducing the cost of packaging, disposal, and product damage due to shipping and handling (Table I-3). In addition, companies report that they have generated additional long-term cost savings by implementing reusable container systems, including reduced freight, labor, and handling and storage costs.

Table I-3. Lifetime cost comparison of one-way and reusable 2-cubic-foot shipping containers by material

	Corrugated One-way	Corrugated Reusable	Plastic Reusable
Initial cost	$0.53	$1.06	$11.03
Estimated life (number of trips)	1	5	250
Cost per trip (average)	$0.53	$0.21	$0.044

Source: "How to Select Shipping Containers," Buckhorn, Inc., Milford, Ohio, 1991.

INFORM has identified four factors that are generally conducive to the reuse of shipping containers:

- short distribution distances
- frequent deliveries
- small number of parties, and
- company-owned or "dedicated" distribution vehicles.

Obstacles for the vendor include the initial capital expense of buying the reusable containers, the cost of tracking and accounting for the containers, and the cost of transporting the containers back to their points of origin. For hotels, the major obstacle is finding storage space for the containers.

Hotels may ask their suppliers to use reusable shipping containers for a variety of reasons: as a way to boost efficiency; to save money on disposal; or in response to government mandates to generate less waste. Whatever the motivation, reusable shipping containers can help hotels improve their bottom lines while lessening the nation's garbage burden.

Appendix II. Less Toxic Options in Choosing Products

From carpets, paints, and floor cleaners to pesticides and fertilizers, hotel and motel operators regularly encounter products containing toxic chemicals. In fact, recent studies show that, in a variety of environmental settings, the use and disposal of commercial and consumer products may pose as significant a source of exposure to and release of toxic substances as industrial activity. (See INFORM'S report ***Toxics Watch 199.5.)***

The rising use of these products has led to growing public concern over the environmental and health risks they may pose. For example, how do vapors from cleaning chemicals affect indoor air and the people who breathe it? How do these substances affect the environment during use or disposal?

The **actual** risks posed by chemicals **used** in hotels **and motels** are poorly understood. Risk depends on many factors, factors that involve both the chemicals' toxicity and the degree to which staff and guests are exposed to them. Chemicals regarded as toxic are those that scientific studies indicate may, given sufficient exposure, **cause** adverse health effects such as poisoning, respiratory problems, cancer, nervous system damage, or birth defects.

Many products that hotels and motels use are known to contain or may contain toxic chemicals. However, determining which products contain which toxic chemicals is difficult because the exact chemical content of individual brands is considered proprietary information. In addition, product formulations change from time to time. Moreover, knowing the chemical content of a product is helpful only for the very few chemicals that have been tested for toxicity. At last count, some 72,000 chemicals were in commerce in the United States, but only a small percentage of them have been tested to an extent that their ability to **cause** cancer, reproductive effects, or other damage is understood.

Table II-l, beginning on the following page, identifies a range of products likely to be used in hotels or motels that either are known to contain toxic chemicals or that may contain them. The table includes information about which chemicals may be found in which types of products as well as possible alternatives, but it is not a comprehensive listing. What the table does show is what types of products might be examined as part of an effort to reduce toxic chemical use in hotels and motels.

The information in the table comes from various government and nongovernment sources. **INFORM** has neither tested these products nor performed any other independent research on which chemicals are used in which products. The table shows only chemicals included in the US Environmental Protection Agency Toxic Release Inventory (TRI) that other research studies have identified as possible components of these products. Products may also contain other TRI and non-TRI chemicals not shown in the table.

Table II- 1. Products, Chemicals They May Contain, and Possible Alternatives

Product Category	Some TRI Chemicals They May Contain	Where It May Be a Problem: Indoor Air Quality	Where It May Be a Problem: Smog	Where It May Be a Problem: Hazardous Waste	Suggestions for Less Toxic or Nontoxic Alternatives
Adhesives, glues	Acetaldehyde, acetone, formaldehyde, dibutyl and diethyl phthalates, methanol, methyl ethyl ketone, methylene chloride, 1 ,1 ,1-trichloro-ethane, naphthalene, phenol, toluene, xylenes	■	■	■	Avoid solvent-based adhesives when possible. For light jobs, such as paper, use stick-type or basic white glue.
Air fresheners	Paradichlorobenzene (those in form of white blocks/crystals and those used to deodorize toilets)	■	■	■	Keep areas clean. Sprinkle baking soda in trash cans, or baking soda or white vinegar in open dishes. Herbal potpourri for bathrooms.
All-purpose cleaners	Ammonia	■		■	One teaspoon liquid soap and/or borax per quart wart-n or hot water, or l/2 cup washing soda per bucket of water. Add a little lemon juice or vinegar to cut grease.
Batteries	Cadmium, lead, mercury, nickel, sulfuric acid, zinc			■	Where possible, use manual or plug-in rather than battery-run items. If batteries are necessary, rechargeables mean fewer are used.
Carpets	1,3-Butadiene, 1,2-dichloro-benzene, ethylbenzene, styrene, toluene, 1 ,1 ,1-trichloroethane, xylene	■			Untreated, natural fiber carpets without latex backing.
Chlorine bleach, scouring powder	Chlorine	■		■	Powdered, nonchlorine bleach.
Cleaners/waxes	Methyl ethyl ketone (rarely)	■	■	■	Nontoxic cleaners and waxes.
Disinfectants	Chlorine, cresol	■	■	■	1/2 cup borax in gallon of hot water.
Dry cleaning	Perchloroethylene, 1 ,1 ,1 -trichloroethane	■	■		Washable uniform fabrics avoid the need for dry cleaning.
Fabrics, apparel	Acrylonitrile, di(2-ethylhexyl) phthalate (DEHP), formaldehyde, polyvinyl chloride, 1 ,1 ,1-trichloro-ethane, vinyl chloride	■		■	Untreated fabrics available. Avoid plastics.
Furniture strippers	Acetone, methyl ethyl ketone, methylene chloride, toluene, xylenes	■	■	■	Less toxic, solvent-free strippers available.

Table II- 1. Products, Chemicals They May Contain, and Possible Alternatives (continued)

Product Category	Some TRI Chemicals They May Contain	Where It May Be a Problem: Indoor Air Quality	Where It May Be a Problem: Smog	Where It May Be a Problem: Hazardous Waste	Suggestions for Less Toxic or Nontoxic Alternatives
Glass cleaners	Ammonia	■		■	Half white vinegar, half water. (May first need to use rubbing alcohol to remove residues of commercial cleaners.) When dry, rub with newspaper to avoid streaks.
Lawn care chemicals	Chlorothalonil, 2,4-D			■	Consult sources of information on organic gardening.
Metal polishes	Acetone, phosphoric acid	■	■	■	Boil silver flatware in water with baking soda and salt, or aluminum foil and salt. Polish silver and stainless flatware with paste of baking soda and water. For brass, equal parts salt and flour with a little vinegar. For copper, lemon juice and salt. For chrome, white flour in dry rag.
Paint	Dibutyl and diethyl phthalate, ethylbenzene, ethylene glycol, methylene chloride, toluene, xylene	■	■	■	Less toxic and nontoxic paints available. Latex is less toxic than solvent-based paints.
Paint strippers/ removers	Acetone, methanol, methylene chloride, n-butyl alcohol, toluene	■	■	■	Use water-based paints that can be removed with water. Or, wearing gloves, mix one pound trisodium phosphate into one gallon of water. Brush onto surface and let sit for half hour. Scrape off softened paint.
Paint thinners	Acetone, methanol, methyl ethyl ketone, methyl isobutyl ketone, toluene	■	■	■	Use water-based paints, which do not need thinner.
Particle board/ plywood	Acetone, formaldehyde	■			Whole wood products.
Polyurethane wood finish	2-Ethoxyethanol	■	■	■	Less toxic finishes available.
Rug/upholstery cleaners	Perchloroethylene (in dry-cleaning types, not water-based shampoos)	■	■	■	For removing odors and fresh grime, sprinkle cornstarch and borax, or baking soda, liberally on surface. Let sit l/2 hour, then vacuum. For spots/ stains, see “spot removers” below. Buy dark color carpets.

Table II- 7. Products, Chemicals They May Contain, and Possible Alternatives (continued)

Product Category	Some TRI Chemicals They May Contain	Where It May Be a Problem: Indoor Air Quality	Where It May Be a Problem: Smog	Where It May Be a Problem: Hazardous Waste	Suggestions for Less Toxic or Nontoxic Alternatives
Spot removers	Perchloroethylene, I,I,I-trichloroethane	■	■	■	Variety of "homemade" alternatives depending on type of spot or stain. For coffee or chocolate, use borax and water. For ketchup, gravy, or red wine, use club soda. Clean stains right away.
Toilet cleaners	Hydrochloric acid			■	Use baking soda. If badly stained, use a paste of lemon juice and borax.
Varnish/stain/ sealant	Acetone, lead, methanol, pentachloro-phenol	■	■	■	Nontoxic or less toxic brands available.

Source: **INFORM,** ***Tackling Toxics in Everyday Products: A Directory of Organizations, 1992.***

Choosing Alternative Paints

In **Tackling Toxics in Everyday Products,** INFORM found paints to be among the more common sources of exposure to toxic chemicals through consumer products. A later report, Stirring Up Inno-***vation: Environmental Improvements in Paints and Adhesives,*** identified heavy metals and solvents as the constituents of paints and adhesives that cause the greatest concern. For example, lead and mercury are known to be toxic to the nervous system, especially in children, while cadmium can cause kidney damage if it accumulates at high levels. Exposure to solvents can cause effects that range from dizziness or drowsiness to permanent damage to the nervous system, liver, or bone marrow.

In addition to human health risks, paints contain chemicals that can cause environmental damage, including smog and depletion of the stratospheric ozone layer.

Because of the various risks that they pose, paints have become the focus of public health concerns and legal and regulatory activity. In response, US industry has begun to offer new and, in some cases, safer products. Some manufacturers have sought to reduce toxic chemicals, volatile organic compounds (VOCs) that form smog, and ozone-depleting substances in paints and adhesives, For example, Devoe and Raynolds Co., has developed low-solvent, water-based paints that can replace solvent-based paints in applications demanding high gloss and durability. The Glidden Co., offers paints that are completely free of added solvents and have no measurable VOC content.

Other companies have sought to address environmental concerns associated with related activities, such as removing and disposing of old paints prior to repainting, or the disposal of waste paint, painting tools, and containers. Innovations for safe repainting that dispense with most toxic ingredients include new paint remover formulations such as 3M “Safest” stripper, Dumond Chemical Peel Away 6, and Woodfinishers Pride Breath-Easy Formula.

New, environmentally friendly innovations in paints also include paints that cover existing finishes, eliminating the need for paint removal. For example, Porter Paint’s water-based paints can be applied directly over oil-based finishes, eliminating the need for strippers.

Environmental concerns also appear to be driving a rebirth of older paint technologies in architectural applications, including “milk” paints based on casein, produced by the Milk Paint Company. Another alternative is to use vegetable-based solvents in place of petroleum-based products. At least

three companies, Auronatural Plant Chemistry, Livos Plant Paints, and Biofa Naturprodukte, produce such paints.

These are just a few of the many examples of newly designed paints and adhesives. Table 11-2, which is taken from INFORM'S study ***Stirring Up Innovation: Environmental Improvements in Paints and Adhesives,*** contains more information on these innovations and also lists companies offering newly designed products.

Table H-2. Recent environmental innovations in paints

Innovation	Company	Environmental Advantage
. REMOVAL OF OLD PAINT AND SURFACE PREPARATION		
"Safer" stripper (paint and varnish remover)	3M	Very few known toxic ingredients used
Peel Away 6 (paint and varnish remover)	Dumond Chemical	Very few known toxic ingredients used
Breath-Easy Formula (paint and varnish remover)	Woodfinishers Pride	Very few known toxic ingredients used
Polyurethane paint components that permit overcoating of steel structures previously painted with lead-based paint	Miles	Does not require the removal of existing paint and therefore reduces lead contamination to the surrounding environment
Waterborne epoxies for aluminum mastic coatings that enable the application of new paint over existing lead paint	Sherwin-Williams	Does not require the removal of existing paint and therefore reduces lead contamination to the surrounding environment
Water-based paints that can be applied directly over oil-based finishes	Porter Paints	Eliminates the need for strippers with high VOC content
. PAINTS WITH DECREASED SOLVENTS AND VOLATILE ORGANIC COMPOUNDS (VOCS)		
Vegetable-based solvents for paints	Auro Natural Plant Chemistry	Replaces petroleum-derived solvents
Vegetable-based solvents for paints	Biofa Naturprodukte	Replaces petroleum-derived solvents
Vegetable-based solvents for paints	Livos Plant Paints	Replaces petroleum-derived solvents
"Milk" paints based on casein	Old Fashioned Milk Paint Company	No solvents or heavy metals used
Waterborne acrylic enamels, epoxy coatings, and acrylic dry fog	Devoe & Raynolds Co.	These products exceed the performance of most water-based products, and in some cases that of solvent-based products
Replacing ethylene glycol ethers in waterborne paints with propylene glycol ethers	Dow	Substituting less toxic solvents

Table 11-2. Recent environmental innovations in paints (continued)

Innovation	Company	Environmental Advantage
• PAINTS WITH DECREASED SOLVENTS AND VOLATILE ORGANIC COMPOUNDS (VOCS) (continued)		
Spred® 2000 and Lifemaster® 2000 (latex paints)	The Glidden Company	Completely eliminates the use of solvents and VOCs
Universal colorants for machine tinting	Huls America	Completely eliminates the use of VOCs
. DECREASES IN TOXIC ADDITIVES		
Developing latex paints with lower levels of biocides and completely without fungicides	American Formulating Manufacturers	Little or no exposure to heavy metals
Developing latex paints with lower levels of biocides and completely without fungicides	Miller Paint Co.	Little or no exposure to heavy metals
Developing latex paints with lower levels of biocides and completely without fungicides	Murco Wall Products	Little or no exposure to heavy metals
Developing new surfactants that would allow paint resins that currently can only be used in solvent-based systems to be used in waterborne paints	ICI	Eliminates use of solvents
• DECREASES IN TOXIC PIGMENTS		
Developing organic replacements for lead and other heavy metals in paints/coatings	Ciba-Geigy	Little or no exposure to heavy metals
Developing organic replacements for lead and other heavy metals in high-solids and powdered paints/coatings	Engelhard	Little or no exposure to heavy metals
Developing organic replacements for lead and other heavy metals in high-solids and powdered paints/coatings	Hoechst-Celanese	Little or no exposure to heavy metals
Low-solubility cadmium compounds for pigments	Engelhard	Decreases the potential for exposure
• ALTERNATIVE PERSPECTIVE ON PAINTS		
Developing recycled water-based paints for use in traffic markings	H20 Green Paint	Fewer solvents and heavy metals used
Thermapaint with insulating properlies	Helios Energy Products	Addresses environmental problems associated with energy use
Waterborne paints with very low VOC content and novel delivery and application scheme	Kimat Paints	Reduces waste because unused paint and containers are collected for recycling and no wastewater is produced because paint isapplied directly from reusable squeeze bottles or pouches

Source: INFORM, Stirring ***Up*** Innovation: ***Environmental Improvements in Paints and Adhesives, 1994.***

Appendix III. Blueprint for Office Sustainability

What makes an office "green?" Conservation of natural resources, reuse of materials, minimal use of materials containing toxic substances, and energy efficiency, among other factors. The environmental features listed here can be incorporated during office renovations or during construction ("build-out") of new office space. All of these features were included in the design and construction of INFORM'S new offices at 120 Wall Street in New York City, using existing products and at a cost lower than standard New York City build-out costs.

Green Features	Standard Features	Environmental Benefit
Design Strategies		
Open office plan/low-partition workstations	Enclosed offices and/or high partition workstations	Allow natural light into all work areas. Less electricity needed to light work areas.
Clerestory/sidelite windows	Solid/opaque walls and doors	Allow natural light into enclosed offices and increase feeling of "openness" in offices and central work area.
Lighting		
Ambient/task lighting strategy	Uniformly high footcandle level	Save energy by providing appropriate levels of light for different functions.
Up/down pendant fixtures	Recessed fixtures	Maximize brightness without causing glare. Allow light to reflect both up and down. Reduce contrast, electricity use, and number of light bulbs needed by 66%.
Electronic ballasts	Magnetic ballasts	More efficient transfer of electricity to light; higher flicker rate reduces eye-strain.
Motion sensors	Light switches	Can cut energy costs by 30% by automatically turning off lights in unoccupied work areas.
Materials		
Low-toxicity products	Products with toxic constituents	Low-toxicity paints, adhesives, carpet glue, spackling compound, panel partitions contain fewer toxic constituents and smaller quantities of toxic substances than standard products and pose less risk of exposure; outgassing of volatile organic compounds (VOCs) is reduced.

Green Features	Standard Features	Environmental Benefit
Materials (continued)		
Linoleum flooring	Vinyl or vinyl composition flooring	Linoleum is produced from natural ingredients such as linseed oil and sawdust and is very durable.
Solution-dyed carpet	Vat-dyed carpet	Conserves water in manufacturing process.
Exterior-grade plywood	Interior-grade plywood	Reduced emissions of formaldehyde, a carcinogen.
Resource Conservation		
Wallboard with recycled content	Non-recycled wallboard -	Keep materials out of the waste stream. Less new material needed.
Remanufactured workstation	New workstations	Keep materials out of the waste stream. Less new material needed.
Reused furniture	New furniture	Keep materials out of the waste stream. Less new material needed.
2-l/2" metal studs	3-5/8" metal studs	Less new material needed.
Heating and Cooling		
Insulated ductwork	Partially insulated	Insulating almost 100 percent of the cooling ducts means less energy is needed to cool circulated air.
High air filtration	Partially filtered	Outside air passes through filters that reduce the amount of polluting particles from 40 to 80 percent, rather than the standard 20 percent.
Multiple air changes	Few air changes	New outside air is circulated eight times an hour, compared with code-specified three times per hour.
Low-velocity air circulation	Standard velocity	Decreases potential for moisture build-up and fungal/bacteria growth in ductwork.
Air economizer	No variable controls	Allows unconditioned outside air to cool inside air when temperature outside dips below 55 degrees.
Miscellaneous		
Sub-metering	Building metering	Provides incentive to save energy by billing individual office for energy use.
Extended lease	Standard lease	Longer lease provides time period to realize payback of increased initial costs for energy-efficient products and systems.

Appendix IV. Hotel Contacts

Arbor House, An Environmental Inn
3042 Monroe Street
Madison, WI 53711
Contact: Cathie Imes, Innkeeper/President
Phone: (608) 238-2981

Banff Springs Hotel
405 Spray Avenue
Alberta, Canada TOL OCO
Contact: Lalta Persaud, Executive Housekeeper
Phone: (403) 762-22 11

Canadian Pacific Hotels & Resorts
One University Ave., Suite 1400
Toronto, Ontario M5J 2Pl Canada
Contact: Ann Checkley, Director, Communications and Environmental Affairs
Phone: (416) 367-7101

Chateau Whistler Resort
4599 Chateau Boulevard
Whistler, British Columbia VON lB4 Canada
Contact: Jayne Lloyd-Jones, Director, Public Relations
Phone: (604) 938-8000

Cheeca Lodge
P.O. Box 527
Islamorada, FL 33036
Contact: Julie Perrin, Director of Public Relations
Phone: (305) 664-4651

Commonwealth Hospitality Ltd.
5225 Orbitor Drive, Suite 3
Mississauga, Ontario L4W 4Y8 Canada
Contact: Shiv Varma, Purchasing Supervisor
Phone: (905) 238-3403

Dadeland Marriot
9090 South Dadeland Blvd.
Miami, FL 33156
Contact: Jose Montti, Purchasing Department
Phone: (305) 670- 1035

Walt Disney World Company
Walt Disney World
Post Office Box 10,000
Lake Buena Vista, FL 32830
Contact: Robert Penn, Director, Environmental Affairs
Phone: (407) 827-2730

Fontainebleau Hilton Resort and Towers, Miami Beach
Betterworld Inc.
540 East McNab Road, Suite A
Pompano Beach, FL 33060
Contact: Heidi Pimentel, Director of Marketing
Phone: (305) 946-3377

Harmony Resort
c/o Maho Bay Camps, Inc.
17A East 73rd Street
New York, NY 1002l-3578
Contact: Stanley Selengut, President
Phone: (212) 472-9453

Holiday Inn SunSpree Resort
13351 State Road 535
Orlando, FL 32830
Contact: Bob Goulett, Director, Facilities Services
Phone: (407) 239-4500

Hotel Newfoundland
Cavendish Square
PO Box 5637
St. John's, Newfoundland AIC SW8 Canada
Contact: Jim Thorne, Supervisor, Purchasing and Materials
Phone: (709) 726-4980

Hyatt Regency Chicago
151 East Wacker Drive
Chicago, IL 60601
Contact: Muhammad Jalali, Recycling Supervisor
Phone: (312) 616-6878

The New York Vista Hotel
Three World Trade Center
New York, NY 10048
Contact: Tim Wolfe, Hotel Manager or Kathleen Duffy, Director of Public Relations
Phone: (212) 938-9100

The Peninsula Hotel.
700 Fifth Avenue
New York, NY 10019
Contact: Helen Choi, Director, Public Relations
Phone: (2 12) 247-2200

Ritz-Carlton Naples
280 Vanderbilt Beach Road
Naples, FL 33963
Contact: Matt Lawton, Laundry Manager
Phone: (8 13) 598-3300

Saunders Hotel Group
(Boston Park Plaza Hotel & Towers, Lenox, Copley Square)
c/o Eco-Logical Solutions, Inc.
64 Arlington Street
Boston, MA 02116
Contact: Peter Allison, Director of Operations
Phone: (617) 457-2411

Trump Taj Mahal Casino Resort
1000 Boardwalk at Virgina Ave.
Atlantic City, NJ 08401
Contact: Ed Macejka, Director, Housekeeping
Phone: (609) 449- 1000

The Westin Bayshore
1601 West Georgia Street
Vancouver, British Columbia V6G 2V4 Canada
Contact: Monica Hayes, Director, Public Relations
Phone: (604) 682-3377

Willard Inter-Continental Hotel
1401 Pennsylvania Ave., NW
Washington, DC 20004
Contact: Richard Kline, Materials Manager
Phone: (202) 628-9100

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About the Authors

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John P. Winter is a Senior Research Associate in **INFORM'S** Sustainable Products and Practices Program. His current research covers waste prevention practices and the implementation of industrial ecology principles in the commercial sector. He also leads workshops for corporate groups on waste prevention. He is the co-author of two forthcoming **INFORM** studies, a business waste prevention manual and a study of waste prevention opportunities in municipal procurement programs.

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Previously, Ms. Azimi served as a consultant to the New York City Department of Environmental Protection. She earned a B.A. at Wesleyan University, where she majored in the Science in Society Program and was elected to Phi Beta Kappa.

Attachment B

Publications and Membership

Sustainable Products and Practices: Selected Publications

Making Less Garbage on Campus: A Hands-On Guide (David Saphire), 1994, 72 pp., $20.

Delivering the Goods: Benejits of Reusable Shipping Containers (David Saphire), 1994, 32 pp., $20.

Case Reopened: Reassessing Refillable Bottles (David-Saphire), 1994, 366 pp., $25.

Germany, Garbage, and the *Green Dot: Challenging the Throwaway Society (Bette K. Fishbein), 1994, 276* pp., $25.

Making Less Garbage: A Planning Guide for Communities (Bette K. Fishbein and Caroline Gelb), 1993, 192 pp., $30.

Business Recycling Manual (copublished with Recourse Systems, Inc.), 1991, 202 pp., *$42.50.*

Burning Garbage in the US: Practice vs. State of the Art (Marjorie J. Clarke, Maarten de Kadt, Ph.D., and David Saphire), 1991, 288 pp., $47.

Reducing Office Paper Waste (Robert Graff and Bette Fishbein), 1991,28 pp., $15.

Chemical Hazards Prevention: Selected Publications

Toxics Watch 1995, 1995, 816 pp., $125.

Stirring Up Innovation: Environmental Improvements in Paints and Adhesives (John Young, Linda Ambrose, and Lois Lobo) 1994, 128 pp., $25.

Preventing Industrial Toxic Hazards: A Guide for Communities (Marian Wise and Lauren Kenworthy), 1993, 208 pp., *$25.*

Environmental Dividends: Cutting More Chemical Wastes (Mark H. Dorfman, Warren R. Muir, Ph.D., and Catherine G. Miller, Ph.D.), 1992, 288 pp., *$75.*

Tackling Toxics in Everyday Products: A Directory of Organizations (Nancy Lilienthal, Michele Ascione, and Adam Flint), 1992, 192 pp., $19.95.

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Cutting *Chemical Wastes: What 29 Organic Chemical Plants Are Doing to Reduce Hazardous Wastes* (David J. Sarokin, Warren R. Muir, Ph.D., Catherine G. Miller, Ph.D., and Sebastian R. Sperber), 1986, *548* pp., $47.50.

Energy and Air Qualify

Harnessing Hydrogen: The Key to Sustainable Transportation (James S. Cannon), 1995, 360 pp., $30.

Other INFORM Publications

INFORM Reports, INFORM'S quarterly newsletter (see Membership information, page 63).

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INFORM Board of Directors

In one publication, *Less Garbage Overnight* provides the lodging operator with an extremely useful guide to assembling the solid waste pieces of the industry's environmental management puzzle. Focusing on waste prevention, the report includes suggestions not found in similar publications. The result is something which delivers more than the title implies, especially regarding the reduction of toxic wastes.

David M. Stipanuk, Associate Professor, School of Hotel Administration
Cornell University

INFORM has prepared a very useful tool for hotels looking to better manage their waste. The time has arrived for all of us to start doing our part to make the tourism industry more sustainable. This report offers a simple yet in-depth plan and provides many suggestions that can help hotels do their part.

Cara Holley Montrief, Environmental Affairs Manager
Holiday Inn Worldwide

There is intensifying interest in the hospitality industry in preventing waste and saving money. *Less Garbage Overnight* identifies opportunities, offers concrete examples that show where they've been tried, and provides a myriad of waste prevention tactics, including many no-cost and low-cost options.

Professor Marie Hammer, Institute of Food and Agricultural Services
University of Florida

INFORM's report lays out in specific and practical detail the steps hotels and motels can take to protect the environment as well as their bottom lines. It is of value to those in the lodging industry and offers an impressive educational approach for those who train future managers, as in schools like the Conrad N. Hilton College of Hotel and Restaurant Management at the University of Houston.

Beth Beloff, Director, Institute for Corporate Environmental Management
University of Houston

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