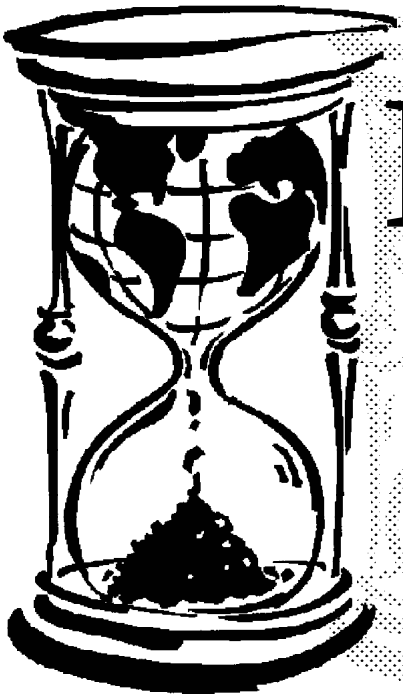

Recycling for the Hospitality Industry

A Guide for Instituting Recycling Programs in Hotel and Motel Properties.

Extension

Cooperative Extension Service
Clemson University

Recycling for the Hospitality Industry

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Acknowledgment

Some of the material incorporated into this manual was adapted from information contained in other recycling guides. Most notable among these were: "Recycling in Hotels and Motels", from the Florida Cooperative Extension Service; "Guide to Commercial and Institutional Recycling, from the Northeast Maryland Waste Disposal Authority; and the "Business Guide for Reducing Solid Waste" by the Environmental Protection Agency.

The Authors wish to extend their appreciation to Ms. J. M. Townsend at the University of Florida for her help and invaluable insights to hotel and motel recycling. The Staff of the Westin Resort in Hilton Head Island, South Carolina is commended for their participation in pilot study activities. Finally the South Carolina Department of Health and Environmental Control, Office of Solid Waste Reduction & Recycling is thanked for financial support which made development of this manual possible.

Overview

South Carolina is a beautiful state blessed with a wide range of natural resources from the mountains to the ocean shore. It is vital that we all work together to protect our environment for our benefit and the welfare of generations yet to come.

Towards this end, South Carolina enacted the Solid Waste and Management Policy Act of 1991. This legislation was designed to address the growing concern citizens have towards the impact of solid waste upon the environment. A main component of the act is to promote the reduction, reuse, and recycling of solid waste before landfilling or incineration. One of the provisions of the law is the establishment of 30% waste reduction and 25% recycling goals by the year 1997.

Government alone cannot meet the goals. Legislation by itself is not the way to encourage people to recycle and reduce. It takes the cooperation of all; government, business, industry, and private citizens. Each group must do their part if we are to preserve the beauty this state possesses.

Today there is an increasing need to wisely utilize our resources. The attractiveness of our environment influences the decision making process of the potential traveler to South Carolina and is therefore a major factor in determining our market potential. One of the greatest challenges that we face is maintaining or improving that environmental base.

Recycling is a key component in maintaining or improving the local environment. Not only does recycling make good economic sense, but it also demonstrates to the guest and the community a sense of good ethics.

Use this manual as a beginning point in developing a recycling program for your property. With teamwork and realistic expectations, your property can have a successful recycling experience. With the cooperation of individual citizens, along with public and private sector groups, we can accomplish our goal of making South Carolina a better place to be.

Introduction

Recycling is one element in the process of addressing the growing problem of municipal solid waste in the United States. By recycling, valuable materials which would otherwise be discarded are collected, remanufactured, and reused. The idea of resource recovery and reuse is a key element in the modern concept of sustainable development.

Another solution to the solid waste problem is to reduce the amount of solid waste generated in the first place. Source Reduction can be implemented hand-in-hand with recycling at hotels. This publication will help guide the development of recycling programs at your facility. While the primary focus is upon recycling, it should be a goal of the hotel staff to look for ways to reduce the generation of trash in the first place.

To be highly effective your solid waste management program should address the following topics:

Capture of recyclable materials from the waste stream. This is only the first step in recycling. It involves knowing which materials can be effectively separated from the hotel waste stream. It also involves identification of local markets which will accept the recyclable materials for ultimate remanufacture into new products. Only those items which have a local market should be considered for inclusion in collection programs.

Delivery of recyclable materials to the remanufactures. From the hospitality industry point of view, this step primarily involves the delivery of quality-clean recyclables to the processor. The intermediate processors\haulers involved in this step are dealing with a low-value commodity. By supplying clean, sorted material at the loading dock, you can ensure a market for your recyclable materials.

Source reduction. This concept has great potential in the hospitality industry. As your recycling team begins to function, they will be able to identify ways to reduce waste before it happens! A simple idea such as two-sided copies can have a tremendous impact upon the waste stream and often times save money in the process (without even considering the avoided solid waste disposal expense).

Purchase of materials with recycled content. This step has to occur for true recycling to take place. Your commitment to collection and marketing is meaningless if you are not willing to actively look for and purchase products with recycled content. The availability of recycled content products are increasing and the price differential compared to virgin content products is disappearing as the recycling industry grows.

Program Development

For any property to implement a recycling program it is necessary to develop a complete and thorough plan. This publication is designed to lead you through the entire process necessary to develop and implement a successful recycling program for resort properties, as outlined in Figure 1. Each step of Figure 1 is discussed in detail on the following pages.

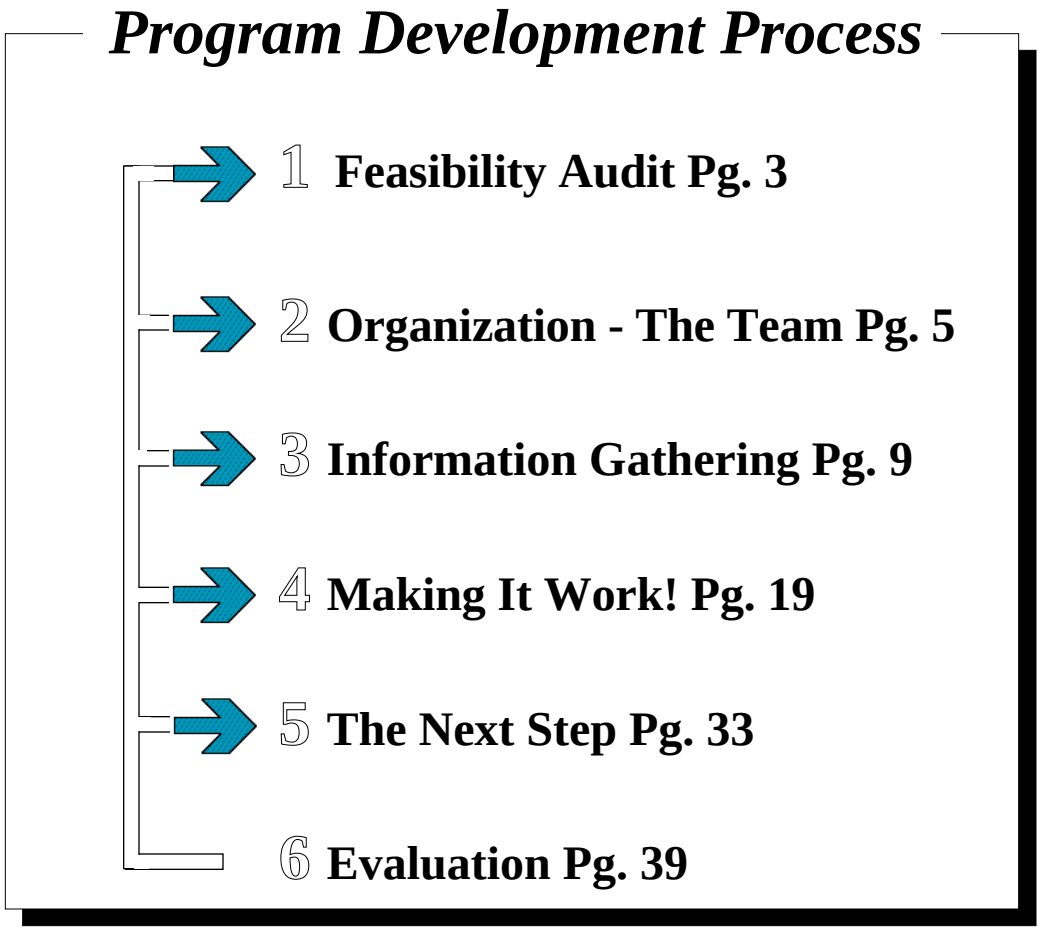


Figure 1. Recycling Program Development Process

The planning process is not a top-down, straight-line process. Initial plans are developed, key players are approached, information is gathered, further plans are made, and continuous evaluation is required to determine where further work or information is needed.

This manual can be used in the same fashion. For instance, the feasibility audit is only the beginning point. The feasibility audit cannot be completed until portions of the team are identified and relevant information has been gathered. By stressing the team approach and making each member a functioning element, a superior plan can be developed.

part 1

Feasibility Audit

As a beginning point a rough feasibility analysis must be undertaken to determine the potential for a recycling program to be established at any hotel or motel. This "first-cut" analysis should consider as a minimum the following items:

Is recycling right for the property?

- Will management support it?
- Will the staff support it?

Are there markets for the collected material?

- What items can be marketed locally?
- Are there public and/or private interests supporting this activity?

What are the costs of recycling?

- Transportation?
- Processing fees?

What are the benefits of recycling?

- Advertising?
- A positive member of the community?
- Environmental stewardship?
- Less solid waste fees?

It is not possible to simply sit down and determine answers to all of the above questions. Good data may not be available in all areas. A recycling team may need to be formed to search out answers and to develop the final plan to go forward or to hold-off until conditions change.

A quick check of local conditions and attitudes will give you an indication of the need to develop a more comprehensive plan to institute recycling at your facility.

part 2

Team Work Is The Key!

Decision by General Manager

If upon review of the initial feasibility audit the general manager decides to go forward with a recycling program the following actions are suggested to ensure program success:

- Inform the hotel's owners and appropriate corporate managers of the hotel's plan to organize a recycling program, and seek their commitment and financial support.
- Appoint a local Recycling Program Manager.
- Establish an accounting system that reflects monthly waste management costs. A monthly report is needed for tracking waste disposal and recycling information.
- Establish a budget for the recycling program. Funds may be needed for purchasing containers, equipment, and developing employee motivation programs.
- Create employee interest in the facilities recycling program.
- Build ownership by involving employees in the initial stages of the program.
- Assist the recycling team in establishing the hotel's recycling goals. Post the goals on bulletin boards so all employees are informed.
- Meet with the recycling team periodically to demonstrate the company's commitment and to monitor the program's progress.
- Support the recycling team's decisions that make the program operate more successfully. Changing waste disposal practices may present challenges for some department managers and supervisors.
- Incorporate recycling procedures in employee position descriptions. Include recycling in employee orientation, employee training, and staff meetings.
- Inform employees of the program's progress.
- Develop an environmentally green marketing plan for the hotel. Work with the hotel's marketing company to highlight the hotel's Recycling and Eco-Purchasing programs in all promotional materials.

Organizing a hospitality related recycling program requires a long term commitment that incorporates a systematic approach which involves the owners, general managers, department managers, and employees. An example of this approach is noted in the Westin Environmental Policy memo which follows.

WESTIN
HOTELS & RESORTS

Memo

July 27, 1994

Subject: WESTIN NORTH AMERICA'S POLICY RELATIVE TO ITS COMMITMENT TO THE ENVIRONMENT

To: WNA Leaders

From: Jim Treadway

cc: Corporate Officers
Corporate Sales Offices
Central Reservations Office

Dear Colleagues:

It is the policy of Westin North America to protect, preserve, and enhance if possible, the natural environment. Westin does this by continuously improving its efforts to conserve natural resources, reduce pollution, and effect and support activities that enhance the natural environment. Such efforts shall include energy and water conservation practices, waste reduction and recycling, the use of recycled products, reduction of the discharge of air and water pollutants and environmentally-harmful materials, and initiation or support of local efforts to protect or enhance ecosystems. Related programs and plans to action shall be developed, documented and put into practice. These plans shall be maintained as "living documents" and be part of each property's overall business plan.

Please anticipate as part of the business planning process identifying the steps your property is taking or will take to fulfill your role in making this policy reality. Many thanks.

Regards,

Appointment of the Recycling Program Manager

The recycling program manager should be appointed by the general manager. This position requires an individual with leadership and communication skills who is able to motivate employees. Knowledge of the hotel's current waste disposal practices and contracting procedures would be helpful. The recycling program manager should:

- Meet monthly with the hotel's general manager to inform him/her of the recycling program's progress.
- Organize the hotel's employee recycling team through the involvement of employees from all departments.
- With management's assistance establish a budget for program organization, equipment purchases, and employee motivation/ rewards.
- Develop an action plan which in cludes dates, activities, employee education, publicity, and reports for management and employees.
- Establish a team meeting schedule. Weekly meetings will be needed during the first few weeks as the recycling program is being organized. Once the program is fully imple mented, monthly meetings will probably be sufficient.
- Post meeting announcements on employee bulletin boards so all employees are aware of the meetings. List dates with the facilities meeting planner so it will appear on the daily event television monitors for the public.
- Work with the recycling materials processor to train the team on materials preparation.
- Develop recycling procedures to complement the operational practices of the facility. Train employees in recycling procedures specific for their departments.
- Research recycling container types and equipment prices.
- Contact intermediate processors and government materials recovery facilities for processing information.
- With the assistance of department managers and employees, design materials collection and storage systems that compliment employee work procedures. Seek their input in selecting recycling collection containers for work stations in their departments.
- Issue bid invitations to waste haulers and intermediate processors for removal/hauling and processing of recyclable materials.
- Work with the General Manager and Properties Public Information Manager to prepare news releases for hospitality industry publications and local media.
- Issue bid invitations for purchasing and leasing recycling containers and equipment.
- Develop a monitoring program that addresses employee compliance in the property's recycling program. If one employee does not comply with the recyclable materials preparation requirements of the processor, an entire load of materials may be rejected.

Organization of Recyling Team

When organizing the recycling team be sure to include
When organizing the recycling team be sure to include employees from all departments and work shifts. Team members may be volunteers, selected by management, or elected by co-workers. Be sure to establish a rotation system for recycling team members. It is important to keep a few experienced members on the team at all times. The team should:

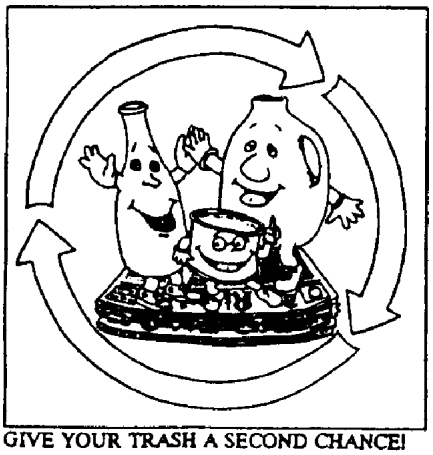
- Assist in developing, implementing, and monitoring the property's recycling program.
- Set specific goals for volume and weight reduction.
- Teach recycling techniques to employees in their departments.
- Inform co-workers of the recycling program's progress.
- Assist in preparing recycling procedures for the various hotel departments.
- Monitor compliance with recycling procedures established by the recycling team.
- Periodically evaluate types and amounts of wastes generated in the various departments and adjust the recycling program to include those materials, if appropriate.
- Evaluate program effectiveness.

Team Agenda

During the first two to three months, meeting agendas should focus on organizing the recycling program and training employees. After the initial program organization, meeting agendas should cover motivational programs, employee ideas, and program publicity.

Suggested Team Topics:

- Hauling charges and receipts.
- Recycling material payments.
- Departmental recycling compliance.
- Program publicity.
- Employee motivational programs.
- Container condition/sanitation.
- Employee suggestions.
- Source reduction/EcoPurchasing.



GIVE YOUR TRASH A SECOND CHANCE!

Denise Civiletti

part 3

Information Gathering

Waste Audit

In order to develop an effective program it is important to know your starting point, this is accomplished with a waste audit. The waste audit identifies the types and approximate quantities of material generated on the property that are available for recycling. The audit will help you determine:

- ✓ The amount of waste and recyclables generated
- ✓ Types of recyclables generated
- ✓ Potential savings due to waste disposal cost reduction

Although an estimate of the amount of recyclables can be done by direct sorting and measurement of waste, experience has taught us that an acceptable estimate of recyclables can be made from reviewing purchasing and waste removal records and by conducting a walking audit of facilities.

Facility Walk-Through

This activity is designed to identify and record the different waste-generating activities and equipment in your facility, the types of waste produced, and any current waste reduction efforts. During this activity it will be possible to identify materials that could be targeted by your source reduction program and brainstorm ways to reduce, recycle, or compost these materials (See suggestions beginning on page 33).

The walk-through will produce the following information:

- Waste-producing activity or equipment.
- Waste material produced.
- Estimated waste produced per year.
- Current waste reduction activities, if any.

The walk-through entails carefully observing waste-generating activities and equipment, examining the contents of waste containers, interviewing supervisors and employees, and documentation of findings.

Be sure to pay close attention to areas and operations that tend to generate the largest amounts of waste, such as shipping and receiving departments, copying areas, cafeterias, assembly lines, and offices. Remember to included a review of the grounds maintenance operations. While conducting the walk-through, watch closely for activities and equipment that generate waste unnecessarily, as well as waste reduction efforts that are already in place.

Before the walk-through begins, contact department managers to inform them of the visit and the possibility of short interviews with department staff. (More involved interviews should be scheduled separately.) You may also want to interview custodial workers and operations staff.

If possible, schedule the walk-through just before trash pickups to allow a sufficient amount of waste to accumulate. Avoid scheduling it on or around holidays, company parties, or other special events that would produce waste not representative of a normal workday.

During the walk-through, ask questions about variations in daily waste generation. For example, periodic deliveries may result in more discards on the delivery day. In addition, ask about any recent or upcoming changes within the department, such as new equipment or procedures, that could alter the types or amounts of waste generated.

Review of Purchasing and Waste Removal Records

After completing the facility walk-through, it may be useful to document recycling potential by reviewing records. The weight of waste, cardboard, newspaper, glass, and steel can be estimated using worksheets 1-5. Worksheets 6 & 7 can be utilized to document waste disposal costs and potential savings due to recycling.

This summary only considers the major recycleables contributing to disposal weight reduction (cardboard, newspaper, glass, and steel). However, aluminum, office paper, and plastic are items which can be easily seperated from the solid waste stream and have good markets in many locations. They should be given serious considered for program inclusion. Later chapters will discuss the marketing of recyclables including cardboard, newspaper, glass, steel, aluminum, office paper, and plastic.

Worksheet 1. Estimating the weight of waste

From records:

1. 12 month total weight figure from solid waste hauler..... _____ ton/year
2. Monthly solid waste stream (line 1÷ 12) ..... _____ ton/month

By guestimating:

3. Volume of waste disposal containers (width x length x depth) ..... _____ ft^3
4. Number of pick-ups per month..... _____ #/month
5. Average load in containers (ie 70% full, use 0.70)..... _____
6. Estimated conversion of hotel waste volume to weight ..... _____ lb/ft^3
   (uncompacted use 181 lb/ft^3, compacted use 28 lb/ft^3)
7. Monthly solid waste stream (lines 3 x 4 x 5 x 6 ÷ 2000) ..... _____ ton/month

Worksheet 2. Estimating the weight of cardboard

This item is hard to quantify. You may wish to spot check weights for a short period of time to estimate your total use. Previous studies have found monthly, cardboard recycling rates as high as 18% of the solid waste stream at some hotels. Use the following as a rough guide.

1. Tons of solid waste per month (line 2 or line 7, Worksheet 1) ..... _____ ton/month
2. % of solid waste which is cardboard ..... _____ %
3. Total weight of cardboard per month (lines 1 x 2 ÷ 100) ..... _____ ton/month

Worksheet 3. Estimating the weight of newspaper

1. Number of newspapers delivered to guest rooms per month..... _____ #/month
2. Number of papers in vending machines per month ..... _____ #/month
3. Total number of newspapers (lines 1 + 2)..... _____ #/month
4. Average weight of single newspaper in pounds ..... _____ lb/paper
5 Total monthly weight of newspapers (lines 3 x 4) ..... _____ lb/month
6. Total monthly weight of newspapers (line 5 ÷ 2000) ..... _____ ton/month

Worksheet 4. Estimating the weight of glass

1.	12 oz. beer bottles (regular glass) ..	_____	cases	x	10.50 lb/case ..	_____	lb/month
2.	12 oz. beer bottles (heavy glass)	_____	cases	x	17.10 lb/case ..	_____	lb/month
3.	1.75 litre liquor bottles	_____	cases	x	12.75 lb/case ..	_____	lb/month
4.	1 litre liquor bottles	_____	cases	x	13.50 lb/case ..	_____	lb/month
5.	750 ML liquor bottles	_____	cases	x	11.60 lb/case ..	_____	lb/month
6.	4 litre house wine	_____	cases	x	10.25 lb/case ..	_____	lb/month
7.	3 litre house wine	_____	cases	x	09.00 lb/case ..	_____	lb/month
8.	1.5 litre house wine	_____	cases	x	10.50 lb/case ..	_____	lb/month
9.	1.5 litre varietal wine	_____	cases	x	10.50 lb/case ..	_____	lb/month
10.	750 ML varietal wine	_____	cases	x	11.60 lb/case ..	_____	lb/month
11.	375 ML varietal wine	_____	cases	x	19.50 lb/case ..	_____	lb/month
12.	187 ML varietal wine	_____	cases	x	11.25 lb/case ..	_____	lb/month
13.	1.5 litre champagne	_____	cases	x	15.00 lb/case ..	_____	lb/month
14.	1 litre champagne	_____	cases	x	24.00 lb/case ..	_____	lb/month
15.	750 ML champagne	_____	cases	x	17.25 lb/case ..	_____	lb/month
16.	187 ML champagne	_____	cases	x	19.50 lb/case ..	_____	lb/month
17.	12 ounce wine cooler	_____	cases	x	10.50 lb/case ..	_____	lb/month
18.	10 ounce bar mixes	_____	cases	x	08.40 lb/case ..	_____	lb/month
19.	11 ounce mineral water	_____	cases	x	13.50 lb/case ..	_____	lb/month
20.	6.5 ounce perrier water	_____	cases	x	07.90 lb/case ..	_____	lb/month
21.	Total weight of all glass (add lines 1 through 20)					_____	lb/month
22.	Total weight of glass in tons (line 21÷ 2000)					_____	ton/month

Worksheet 5. Estimating the weight of steel

This estimate relies upon purchase records and a spot check of weights to arrive at an answer.

1.	Number of cases of large cans used per month	_____	cases/month
2.	Number of cans per case.....	_____	#/case
3.	Weight of one can	_____	lb/can
4.	Total wieght of large cans (lines 1 x 2 x 3)	_____	lb/month
5.	Number of cases of medium cans used per month	_____	cases/month
6.	Number of cans per case.....	_____	#/case
7.	Weight of one can	_____	lb/can
8.	Total wieght of large cans (lines 5 x 6 x 7)	_____	lb/month
9.	Number of cases of small cans used per month	_____	cases/month
10.	Number of cans per case.....	_____	#/case
11.	Weight of one can	_____	lb/can
12.	Total wieght of large cans (lines 9 x 10 x 11).....	_____	lb/month
13.	Total weight of all cans (lines 4 + 8 + 12).....	_____	lb/month
14.	Total weight of all cans in tons (line 13 ÷ 2000)	_____	ton/month

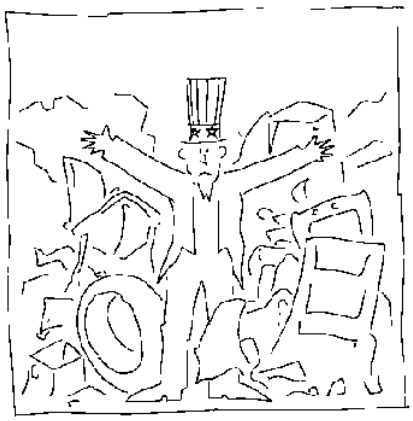
Worksheet 6. Waste disposal costs

1.	What is the hauling charge per pick-up ("pull")	_____	$/#
2.	Number of pickups per month	_____	# month
3.	Total hauling charge per month (lines 1 x 2)	_____	$/month
4.	What is the landfill tipping-fee per ton	_____	$/ton
5.	Solid waste generated per month (worksheet 1, line 2 or 7)	_____	ton/month
6.	Total tipping-fee per month (lines 4 x 5)	_____	$/month
7.	Monthly container rental or lease fee.....	_____	$/month
8.	Total monthly solid waste disposal cost (lines 3 + 6 + 7)	_____	$/month
9.	Solid waste disposal cost per ton (line 8 ÷ line 5)	_____	$/ton

Worksheet 7. Summary of Potential Disposal Cost Reduction Due to Recycling

1. Estimated tons of cardboard (line 3, worksheet 2)	_____	ton/month
2. Estimated tons of newspaper (line 6, worksheet 3).....	_____	ton/month
3. Estimated tons of glass (line 22, worksheet 4)	_____	ton/month
4. Estimated tons of steel (line 14, worksheet 5)	_____	ton/month
5. Tons of recyclables (lines 2+3+4+5)	_____	ton/month
6. Cost of waste disposal per ton (line 9, worksheet 6).....	_____	$/ton
7. Potential savings from recycling (lines 5 x 6)	_____	$/month

Selection of Recycling Materials



An indepth review of your initial waste audit will reveal the types of materials that offer opportunities for recycling. Your recycling team should fully review the waste audit and discuss any additional materials that may have been overlooked. Use the worksheet for selecting Intermediate Processor or Materials Recovery Facility, page16 to help identify materials which may have been overlooked in the waste audit.

It has been established nationally that 50-65% of a hotel's waste is recyclable. The amount of recyclables generated depends on such factors as: type of facility, occupancy, number and size of meal functions, lounge activity, conventions, guest and employee activities, and purchasing practices. It is essential that you identify those materials which will be readily received by processors\recycling companies.

Marketing of the Recyclables

Before a hotel recycling progam can be implemented a decision must be made about where the recyclable materials are to be taken for processing. This decision can make the difference between simply disposing of recyclables or receiving money for them. It also determines the amount of materials preparation required for recycling. This important decision usually involves either public or private Processing Facilities of which there are several types.

An **intermediate processor** collects, consolidates, and prepares quantities of recyclable materials for shipment to manufacturers. Some processing facilities are owned and operated by mills or manufacturers. Processors offer different levels of services. Some processors operate buy-back centers where materials are weighed and payment is made for specific materials. Full-service processors accept all recyclable materials and may offer other services such as container leasing or loan and materials transportation.

A **Materials Recovery Facility (MRF)** accepts commingled recyclable materials for processing. Most MRFs accept glass, plastic, paper, aluminum, and steel materials. Each operation is different so contact the local MRF manager for information about acceptable materials and the preparation required. MRFs may be owned and operated by private industry or by city or county governments. In some states, MRFs are owned by counties and operated by private industry. MRFs may or may not pay for recyclable materials and occasionally there may be sorting or processing fees.

Investigate the rules and regulations governing hauling and tipping fees at MRFs in your county before choosing a processor for the hotel's recyclable materials.

Intermediate processors/recycling companies are listed in the yellow pages of telephone directories. New companies or smaller companies may not be listed in the yellow pages. Contact the local county or city recycling coordinator for a list of recycling companies servicing your area and a copy of local recycling rules and regulations at the County MRF, if there is one in your county. In addition, the South Carolina Department of Health and Enviromental Control (1-800-768-7348) may be of assistance.

Tips for Selecting a Materials Processor

The following questions will help in gathering information for making an informed decision when selecting a company to process the hotel's recyclable materials.

1. Which recyclable materials does the processor accept? Some processors accept all of the materials being recycled by hotels and motels. These materials include office paper, newspaper, cardboard, steel, plastic, aluminum, and glass. In contrast, some processors only accept one or two select materials. For example, an intermediate processor may recycle only aluminum or office paper. To reduce truck traffic at the hotel/motel, look for a processor who accepts all of the materials. (see Processor Worksheet on next page)

2. What are the materials preparation requirements? The degree of materials preparation will vary with the materials and with the processors. Some processors require that materials be clean and sorted and others accept clean commingled materials.

3. Does the processor pay the hotel/motel for the materials? Some processors pay for clean, high quality recyclable materials. Receiving payment for the materials should not be the motivating force for recycling; however, if payment is received for the materials, it can help finance the recycling program's start-up expenses and employee programs. If the processor pays for recyclable materials, establish how the price is determined and how often payment is made. Provide the processor with the hotel's name and address so payments are not sent to the hauling company.

4. Does the processor provide collection and/or storage recycling containers? If yes, are containers provided at no cost? How are old worn-out containers replaced? Processors may provide free recycling containers with an exclusive agreement for the materials.

5. Does the processor provide transportation for the materials? If yes, is there a charge? What is the frequency and time of materials pick-up? There are processors who may provide free transportation for some materials. This has been a trend in some states with mills and processors of newspaper, office paper, aluminum, and cooking oil. The transportation charges by waste hauling companies are very competitive. Hotels/motels have been successful in negotiating reasonable charges with waste hauling and processing companies. (See worksheet, page 17)

6. Are there charges for processing the recyclable materials? Process charges depend on the processor. Some charge fees to help cover their overhead. Generally processors who receive recyclable materials at no cost to them, do not charge for processing the recyclable materials.

7. Does the processor provide the hotel with the weight of recyclable materials? Material weights are of value in calculating the savings from the hotel's recycling program. Some processors estimate weights, while others weigh the materials. Weight receipts can help the hotel in record keeping for recycling materials payment purposes. It can also be used in reporting and publicizing the hotel's recycling program accomplishments. Request that the material's weight receipts be delivered or mailed to you on the same day the materials are received for processing.

For Selecting Intermediate Processor or Materials Recovery Facility

Company Name _____

Contact _____

Phone Number _____

Materials Accepted			
	☐ Aluminum cans	☐ Aluminum foil	
	☐ Newspapers	☐ Office paper	☐ Magazines
	☐ Cardboard	☐ Mixed paper	☐ Phone Books
	☐ Steel Cans		
	☐ PET Plastic #1	☐ HDPE Plastic #2	☐ Other Plastic
	☐ Clear Glass	☐ Brown Glass	☐ Green Glass
	☐ Linens, Uniforms,etc.		
	☐ Appliances	☐ Equipment	☐ Furniture
	☐ Batteries	☐ Motor Oil	☐ Paint
	☐ Pool Chemicals	Cooking Oil	
	☐ Grass Clippings/Yard Waste		

✓ Materials Preparation Required _____

_____

✓ Pay for Materials _____

_____

✓ Provide Containers

_____

_____

✓ Provide Transportation _____

✓ Frequency of Pickup _____

_____

✓ Charge for Materials Pickups _____

✓ Day of Week/Hour of Pickup _____

✓ Provide Materials Weights _____

_____

Worksheet For Selecting Materials Transportation

Company Name _____
Contact _____
Phone Number _____

- Charges for transporting a leased or purchased roll-off
  _____
  _____
- Fees for picking up materials in smaller containers
  _____
  _____
- Add-on charges such as franchise fees or gas surcharges _____

  Hours of pickup _____
- How often are materials picked up?
  _____
- How much notice is required for pickups?
  _____
- Length of Contract _____
- Provide Weight Records
  _____
  _____
- How often are containers cleaned?
  _____
  _____
  _____

part 4

Making It Work!

The Central Recycling Center

The Central Recycling Center (CRC) is an area where recyclable materials are stored at the hotel facility until transported to a processor.

Location of the CRC

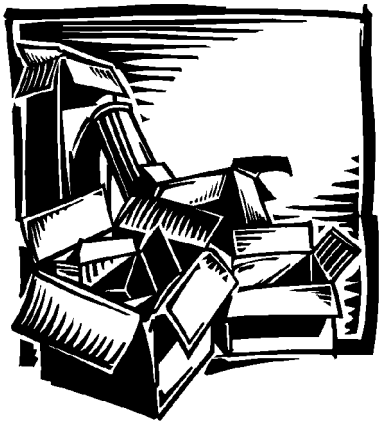
Consideration should be given to the location of the CRC. For convenience, locate it outside the hotel near an employee service exit. Easy access to the container(s) is needed for vehicles picking up and transporting the materials. The CRC is usually located outside the hotel because of the amount of space required for containers. Odors, insects, and rodents are also reasons for locating CRCs outside. The hotel's design, space limitations, and vehicle access may make it impossible to locate CRCs conveniently.

Visibility of the CRC is a concern for some hotel management. They are concerned that the visibility of recycling equipment and stored materials might create an undesirable appearance for the guests. However, guests are expressing interest in preserving the environment and recycling is one way for the hotel to create a positive environmental image. Well-kept CRCs that are visible to guests may create a positive image for the hotel.

Hotels concerned about CRC's visibility can conceal the area with fences, walls, and landscaping. Local zoning ordinances may regulate the CRC location.

Central Recycling Center Equipment

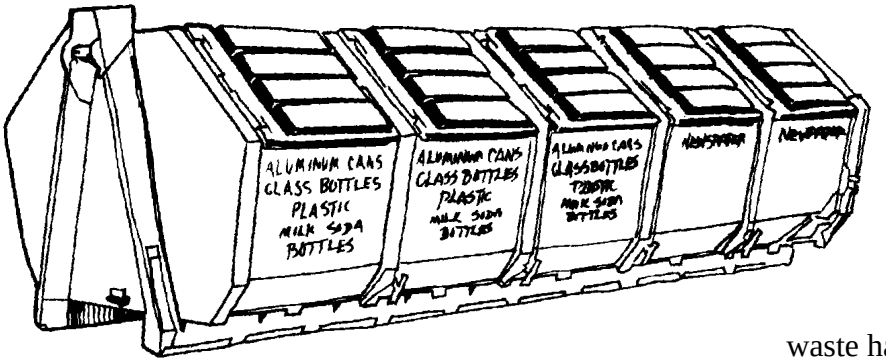
Research the available options before deciding the equipment needs of your recycling program. The decision should be made by the hotel's Management and not by waste haulers, county or city government, or companies who transport recyclable materials.



Equipment is needed in the CRC to prepare materials and store them until they are hauled to the recycling materials processor. Equipment usually found in the CRC includes large storage containers such as a recycling roll-off containers and portable 92-gallon containers or dumpsters. Often a baler is needed for cardboard. A large trash container for disposing of non-recyclables should also be placed in the CRC. If a trash container is not available, non-recyclables may be thrown into recycling containers or on the ground.

Recycling Roll-off Containers

Large compartmentalized recycling roll-off containers are very popular containers for hotel CRCs. The unit may be compartmentalized for sorted recyclables or simply one large compartment for commingled materials. These recycling units are covered and have conveniently located sliding doors. They are available in different sizes but a word of **CAUTION! To reduce the number of times the container is hauled and/or emptied at the processor, select a container as large as space permits.** If the hotel is paying for each container pull and processing fees, the savings from recycling is reduced when containers are pulled half full.



Recycling roll-off containers are available through waste hauling companies and some intermediate processors. Recycling containers may be purchased or leased. (A container worksheet is provided on page 22.)

Recycling Dumpsters

Dumpster waste containers are commonly used at smaller hotel/motel properties for storage of waste. On many properties they are now being used for storing specific recyclable materials such as newspaper, cardboard, and office paper. The dumpster container is not big enough for large hotels and will require more frequent emptying, thus increasing the cost of recycling.

A recycling dumpster is emptied into a larger container on the back of a truck. The dumpster is not removed from the hotel. Drivers may pick up materials from several locations and dump them into the same container before hauling to the processor or mill. This creates a question as to how the weights are determined. Weights of recyclables in dumpsters are usually estimates. Materials are not weighed before dumping into the large container on the truck. If the hotel expects payment for recyclable materials, ask how the weights are determined.

If dumpster containers are used for collection of recyclable and waste materials, the recycling dumpster needs to be painted a different color and labeled to prevent trash/waste materials being thrown into the recycling container. Dumpster recycling containers may be provided at no cost or may be leased or purchased from a waste hauler or intermediate processor.

Portable Storage Containers

Large 92-gallon portable rolling containers are the third type of container used in CRCs for collecting and storing materials. These containers are convenient for small hotels/motels that recycle only a few items such as aluminum cans and office paper. Individual containers have limitations on transportation and storage capacity. This smaller type container is usually transported by a recycling company or by a hotel vehicle.

Before making a final decision on storage containers for the hotel's CRC, compare cost benefits of container leasing and purchasing.

Other areas of consideration are listed below:

Contracts. Sign a short-term contract (one to three months) for leasing recycling containers, processing, and hauling services. This will give the hotel time to evaluate the services of the hauler and processor and test the storage containers. If the service received from a hauler or processor is unsatisfactory, it is easier to switch at the end of a contract.

Do not combine waste hauling and recycling contracts. If one of the services is satisfactory but the other is not, it is difficult to cancel the contract. Combining contracts is becoming a common contract practice of many waste haulers. The expectations and service is not the same for recycling and trash removal. Recycling should not be connected with a franchised waste removal contract. The hotel should be free to stop and start a recycling service as desired. Recyclable materials are commodities and the hotel should be free to choose their method of recycling.

Container Color. Does the hotel have a choice of container color? Some hotel managers want the containers to blend with the hotel structure and others are painting the containers the color of their hotels.

Container Repairs. Who is responsible for container repairs? Include repair responsibility in the contract.

Container Cleaning. How often is the roll-off cleaned? In the summer time, it is recommended that large roll-off units be cleaned monthly to reduce odors. Where is the unit cleaned? Do not permit it to be cleaned at the hotel. There will be debris and cleaning chemicals which will be dumped on the pavement or grass at the hotel.

Hotel Identification on the Recycling Roll-off. Are hotel names and logos permitted on rented containers? Example: The Holiday Inn hotel in Orlando, Florida painted the Holiday Inn logo and words “Holiday Inn Recycles” across the front and back of their recycling roll-off. When the roll-off was hauled to the processor, the hotel received phone calls from people commenting on their recycling efforts.

Collection Efficiency. Will the hauler work to insure efficient collection by monitoring storage volumes and adjust collection, if needed?

Worksheet Container Order

Department: ____

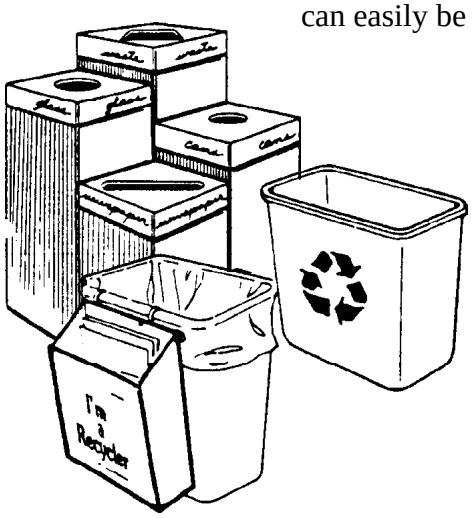
Quantity	***Model or ID Number***	***Size***	***Color***	***Manufacturer Suppplier***

Developing the Recycling Materials Flow Plans

The first step in developing the recycling materials flow plan is to review the hotel's floor plan. Locate the storage spaces, hallways, equipment placement, and employee traffic patterns in all departments. From this information, decisions can be made on collection and storage container placement and on the movement of recyclables through the hotel. The movement paths should be the ones with the least amount of interference with hotel guests and employee activities.

Placing Recycling Collection Containers

Involve employees in deciding where the recycling collection containers will be located in their work areas. For greater employee participation in the recycling program, locate collection containers in or near work areas where recyclables are generated. This method is called collecting at the source or point of waste generation. For example, place a recycling collection container near the can opener in the kitchen. When cans are opened and emptied they can easily be placed in the appropriate collection containers.



Hotel design, equipment placement, and traffic patterns may prevent the containers from being placed in convenient locations. If this is the case, place the containers as close to the work area as possible.

To reduce the labor costs of recycling, plan to handle recycling materials as few times as possible. However, in areas such as offices there is a need for intermediate collection centers. Paper collection should begin at each desk or work station. The full desk containers are then emptied into intermediate collection containers that are located near the work area. At the end of the day or when the larger storage containers are full, they are emptied at the hotel's Central Recycling Center (CRC).

Designing the Materials Flow Plan

Once sites for recycling containers have been identified and storage containers selected, establish a materials flow plan. Developing a materials flow plan is a very important step in setting up the recycling program. The plan establishes which materials are to be recycled at specific locations, where materials are to be stored, the collection containers to be used, which employees do the tasks, and the direction the materials are to be moved through the property.

By completing materials flow plan worksheets for every department and marking the directions the materials are moved on a property floor plan, it is easy to identify and prevent traffic problems with guests and employees. The materials flow plan should start at the point where the recyclables are generated and continue until the materials are placed in the container(s) in the CRC. A recycling materials flow plan worksheet and associated flow process examples are on pages 25, 26, and 27.

Selecting Recycling Containers:

After the material collection points have been identified, it is time to choose the smaller, movable containers where recyclables are first collected and stored. Match the containers to materials to be collected and to the identified collection and storage spaces throughout the property. Consider color coding the containers for specific recyclable materials.

Select Recycling Containers

made from durable, commercial weight materials designed to hold heavy recyclables (Recycling, collection, and storage containers that are going to be used for glass need to be exceptionally durable.)

made from recycled and recyclable materials

with solid bottoms to prevent spillage and stains on floors and carpets

made from washable materials

with durable wheel systems (Consider how much weight the wheel system will support)

with non-mar wheels if carts are to be rolled over carpet, marble, or other special floor coverings

that are transportable and easy to empty into storage containers at the CRC

Materials Processing Equipment

Most hotel recycling programs are designed to collect and store recyclable materials until the materials are transported to a processor. However, if storage space is limited or transportation fees are high, materials may need to be processed at the hotel to minimize the space required to store them. Materials processing, except for cardboard, is not recommended in hotel recycling programs.

A baler is the most frequently used recycling processing equipment in hotel/motel recycling programs. The massive amount of cardboard produced in hotel/motel operations quickly fills recycling roll-offs and dumpsters if a baler is not used.

Baled cardboard may be purchased by paper mills and some processors. In some cases mills and/or processors will pick up clean baled cardboard at the hotel and transport it to the mill at no cost to the hotel. In certain cases processors/haulers will pay for collected cardboard and charge a transportation fee. In either scenario, the hotel receives a waste disposal cost savings. From an economic standpoint, purchasing a baler is a wise decision for most hotels. Baling cardboard reduces the number of times the recycling roll-off or recycling dumpster must be emptied. Recycling baled cardboard provides a quick return on the investment in a baler. The savings from recycling baled cardboard has paid for balers in many locations.

Equipment Issues:

The following items should be analyzed when considering the use of processing equipment:

The amount of time required to process materials and the number of employees involved. When a hotel uses their employees to operate processing equipment, such as crushers or balers, they are doing work that is usually done by a processor.

Are labor and liability costs increased because of operating recycling processing equipment?

Is space available for the equipment and storage of processed materials?

The cost to purchase, install, and maintain the equipment.

Is there a financial benefit for processing materials at the site? If yes, evaluate if it covers the extra labor, liability, equipment cost, and maintenance.

Consider safety features of all equipment. Safety is one of the most important considerations when shopping for recycling equipment. Take the time to verify that the equipment complies with the American NationalStandards Institute's safety requirements. A worksheet for Baler selection can be found on page 28.

Recycling Materials Flow Plan Worksheet

Department:_____

Instructions

Complete a recycling flow plan(s) for each department in the hotel. Identify location(s) of the recyclables in each department at Location 1. Move the materials from Location 1 to Location 2, 3, etc. until it is picked up by the recycler/wastehauler. At each location in the flow procedure, identify the container(s) to be used and who will be handling the materials. Handle materials as few times as possible.

Location 1

Source of Materials

List recyclableless to be collected at this location. Move recyclables to storage Locations 2 or 3.

A. _____

B. _____

C. _____

D. _____

Collection Container(s)

A. _____

B. _____

C. _____

D. _____

List employees collecting material.

A. _____

B. _____

C. _____

D. _____

List employees collecting material.

A. _____

B. _____

C. _____

D. _____

Location 2

Temporary Storage

List containers to be used for storage or moving of each recyclable list above.

A. _____

B. _____

C. _____

D. _____

List employees picking up materials.

A. _____

B. _____

C. _____

D. _____

Location 3

Recycling Center or Roll-Off Unit

List containers to be used for storage or moving of each recyclable list above.

A. _____

B. _____

C. _____

D. _____

List employees picking up materials.

A. _____

B. _____

C. _____

D. _____

Example Flow Process Sheet

Aluminum Recycling Process[1)]

Color Code: Red

Materials Used:

1. Nine 32 Gallon plastic trash containers with lids
2. Heavy duty plastic bags
3. Signs/labels

Set-Up:

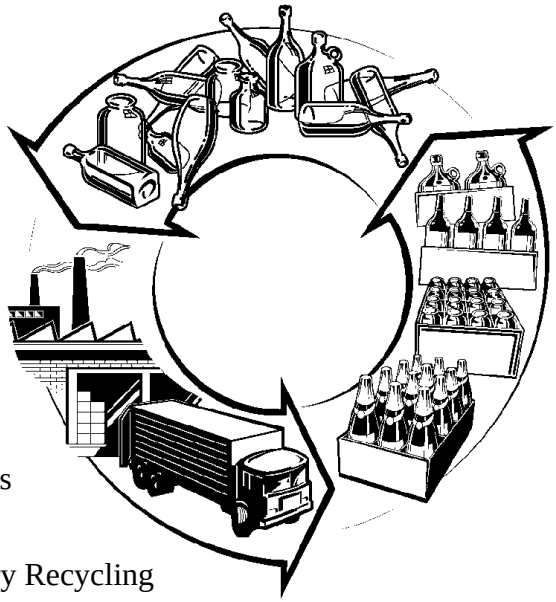
1. Cut hole in each lid just large enough for can.
2. Label each container with "Aluminum Can Recycling."
3. Place plastic bag in each container as needed.
4. Locate plastic trash containers around poolside, snack bar, Carolina Cafe, copier room, banquet hallway, and hotel restaurant for convenience of disposal.

Process:

1. Guests and associates are responsible for voluntary recycling.
2. Plastic bags will be picked-up as needed on a daily basis by a poolside staff, others as designated.
3. Filled plastic bags will be taken to loading dock next to purchasing.
4. Purchasing staff will take to recycling center in Port Royal Plaza.
5. Environmental Committee to educate and coach all associates about process via displays.
6. Alumium Recycling subcommittee to track results.

[1)] Example Aluminim Flow Process Sheet, The Westin Resort, Hilton Head Island, S.C.

Example Flow Process Sheet



Glass Recycling Process[1)]

Color Code: White, Green, & Brown

Materials Used:

1. Color coded Barrels
   - White - clear
   - Green - green
   - Brown - brown
2. Barrel Liners
   - Purchase resistant bags with drawstrings
3. Sign/Labels
4. Main collection bin supplied by Lowcountry Recycling

Set-Up:

1. Location of recycling areas
   - Two sets in the banquet hallway
   - One set in main kitchen close to stewarding
   - One set in Carolina Cafe back station
2. A set of three barrels placed in each location
3. Corresponding identification signs above each location
   - White - clear
   - Green - green
   - Brown - brown
   - One recycling symbol above barrel signs
4. Put liner (bag) in barrels

Process:

1. Dispose of glass bottles in proper barrel.
2. Stewarding to empty full barrel by taking sealed bag of bottles to main collection bin at side entrance of hotel.
3. Stewarding to replace barrel liner bag.
4. Lowcountry Recycling picks up glass 1x/week in main bin.
5. Environmental Committee to educate and coach all associates about process via displays.
6. Glass Recycling subcommittee to track results.

[1)] Example Glass Flow Process Sheet, The Westin Resort, Hilton Head Island, S.C.

Worksheet for Selecting a Baler or Crusher

Campany Name _____
Contact _____
Phone Number _____

Model Number _____

Bale Size _____

Cost Information:
- Lease _____
- Purchase _____
- Maintenance & Repair _____

Delivery & Installation _____
_____

Warranty _____

Equipment Features _____
_____
_____

Other _____
_____
_____
_____

Materials Collection and Preparation

For a successful hotel recycling program, recycling materials collection and preparation must become the responsibility of every employee in the hotel. The method of materials collection and preparation depends on the degree of preparation required by the processor.

A small amount of preparation is required by all processors. It is easier and less time consuming to prepare the recyclables at the source. As products are used or containers are emptied, they are placed in specific recycling collection containers. This takes no more time or effort than throwing the materials into the trash.

When evaluating how to collect and where to store recyclables, inquire about local codes for storing paper and other materials at intermediate and central recycling centers.

There are two ways of storing recyclables in hotels. The choice depends on the requirements of the processor who is handling the hotel's recyclable materials.

- ***Sorted Materials***

  In a sorted materials recycling program, materials are sorted by type. Steel, aluminum, plastic, paper, and glass are each stored in separate recycling containers. These materials may be sorted further. For example, glass is sorted by color into clear, brown, and green.

- ***Commingled Materials***

  In a commingled recycling program, all the recyclable materials are stored together. Office paper is usually an exception. It must be kept clean and dry, so it is stored separately. The materials are taken to a materials recovery facility (MRF) where they are sorted and processed.

Before employees begin collecting materials and placing them in recycling containers, provide training on materials preparation procedures. Even if the materials go to a MRF, some sorting and preparation is required. Check with your processor or MRF as to the degree of preparation and sorting of recycled materials required before beginning the employee training program. Request that the processor assist with the initial training for the Employee Recycling Team.

Recycling Guidelines

The following recycling guidelines provide basic recycling information regarding materials preparation. However, materials preparation may be slightly different with each processor, so consult your processor before beginning an employee training program.

Paper

Each department in the hotel generates recyclable office paper. Most of the recyclable paper is computer, white ledger, copy paper, letterhead, and envelopes. Incoming mail is another source of recyclable paper. Convention hotels have boxes of printed brochures and hand-out materials left by convention attendees and exhibitors. Most of these materials are recyclable with office paper. Check with your processor about accepting convention flyers and boxed materials.

Recycle: Computer and photocopy paper, writing and typing paper, envelopes, flip charts, and convention papers.

Preparation: To obtain maximum value for office paper, separate it into different categories. Common separations include green bar computer, white ledger, and colored ledger paper. Check with the processor on the sorting of colors and paper types. Office paper is valuable, and its value is highest when sorted by types. Remove adhesive labels and binding coils. Place clean, dry papers in containers.

Items Not Accepted: Waxed paper, used paper towels, napkins, plates and cups, carbon paper, envelopes with plastic windows, food wrappers, adhesive tape, magazines, fax glossy paper, rubber bands, Post-It Notes, mailing labels, and plastic.

Metals

Aluminum and steel cans are abundant in hotels and motels. Soft drink and juice machines are located throughout most properties. Steel cans are generated in the kitchens and food preparation areas.

Recycle: Aluminum beverage cans, steel food cans, aerosol cans, and paint cans. Metal pipes, white goods (air conditioning units, refrigeration, etc.) motors, aluminum window frames, and lawn furniture are recyclable but need special arrangements with processor. Check with your local processor to make sure you are supplying only items that can be recycled.

Preparation: Empty and rinse cans to remove food residue. Remove both ends of large steel cans and flatten them to reduce size. Dry empty paint cans. Empty aerosol cans and dispose of the top.

Items Not Accepted: Pesticide cans, power tools, batteries, silverware/flatware, sterno fuel cans, cans with liquid or food in them, and cooking utensils.

Glass

Glass is primarily generated in the Food and Beverage Department. A small amount of glass may be generated from service bars in guest rooms. Most of the glass is generated from beer, wine, liquor, and food containers.

Some processors require that glass be sorted by color - clear, brown, and green. Processors with MRFs accept glass that is commingled. The glass is then color sorted by the processor.

Recycle: Glass containers used for juice, water, soft drinks, food, beer, wine, and liquor.

Preparation: Empty containers; rinse containers to remove food residue; sort the glass by color required by the processor; remove metal bottle collars and lids; and remove plastic safety seals. Do not break glass when collecting it. Broken commingled glass is very difficult to sort.

Items Not Accepted: Dishes and drinking glasses, container lids, baking dishes, mirrors, light bulbs, window glass, crystal, ceramics, television tubes, containers still containing food, and broken glass.

Plastic

Recyclable plastic is abundant in the hotel. Plastic containers are found in the Food and Beverage, Housekeeping, and Engineering Departments. Guests often leave behind plastic bottles in guest rooms.

The Society of Plastics Industry (SPI) has developed a standard identification system which identifies the different kinds of plastic resins. This helps plastic processors recover different kinds of plastic materials. The coding system has a recycling triangle with numbers 1-7 which identifies the resin. Originally only plastic bottles were coded, however, now most plastic containers have the recycling symbol on the bottom. Check with your processors as to the type of plastics they will accept. The most often recycled plastic types are PET (Code 1) and HDPE (CODE 2).

Polyethylene Terephthalate (PET) Code 1, is made from a strong, lightweight form of clear polyester material. PET is used for soft drink bottles, liquor bottles, and other food and non-food containers.

High Density Polyethylene (HDPE) Code 2, is used to produce plastic bottles for house hold, automotive, personal care, assorted food products, and cleaning supplies. Examples include milk, water, and laundry detergent bottles.

Polyvinyl Chloride (PVC) Code 3, commonly used for "blister" packaging.

Low Density Polyethylene (LDPE) Code 4, examples include plastic trash bags, bread and bun wraps, and plastic sleeves for cups and lids.

Polypropylene (PP) Code 5, used for packaging such as yogurt containers, shampoo bottles, and margarine tubs.

Polystyrene (PS) Code 6, is used for making food service containers such as styrofoam cups food trays and "clamshell" packaging. PS products are recyclable; however, it is difficult to find a processor who will accept them.

Other, Code 7, includes multi-layer resins. It can include items manufactured using a combination of the plastics listed above.

Recycle: Plastic bottles used for juice, water, soft drinks, and food; soap and detergent containers; spice and flavoring containers; polystyrene cups and packing materials; and heat shrink wrap.

Preparation: Empty and rinse containers to remove residue. Remove lids and metal handles.

Items Not Accepted: Milk machine plastic bags, bottle caps, flower pots, and containers used for motor oil or gasoline.

part 5

The Next Step

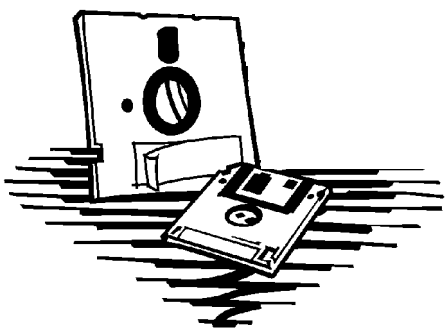
Source Reduction

As you initiate your recycling program with a feasibility audit, it is appropriate to look for ways to avoid generating trash in the first place. Source reduction means avoiding the generation of waste by using less material, using supplies and equipment more efficiently, and buying products that are more durable, easily repairable, or recyclable.

In order for source reduction to work, employees and management must cooperate and communicate effectively. The following ideas are offered as examples which may be implemented at your location. With active participation of hotel management and staff, many other ideas will come forward.

Writing/Printing Paper

- Establish a company-wide double-sided copying policy, and be sure future copiers purchased by your company have double-sided capability.
- Reuse envelopes or use two-way ("send-'n-return") envelopes.
- Keep mailing lists current to avoid duplication.
- Make scratch pads from used paper.
- Circulate (rather than copy) memos, documents, periodicals, and reports.
- Reduce the amount of advertising mail you receive by writing to the Direct Marketing Association Mail Preference Service, P. O. Box 9008, Farmingdale, NY 11735-9008, and ask that your business be eliminated from mailing lists.
- Use outdated letterhead for in-house memos.
- Put company bulletins on voice or electronic mail or post on a central bulletin board.
- Save documents on hard drives and/or floppy disks instead of making paper copies.
- Use central files to reduce the number of hard copies your company retains.
- Proof documents on the computer screen before printing.
- Eliminate unnecessary reports.
- Donate old magazines and journals to hospitals, clinics, or libraries.



Packaging

- Order merchandise in bulk.
- Purchase products with minimum packaging and/or in concentrated form.
- Work with suppliers to minimize the packaging used to protect their products.
- Establish a system for returning cardboard boxes and foam peanuts to suppliers for reuse.
- Request that deliveries be shipped in returnable and/or recyclable containers.
- Minimize the packaging used for your products.
- Use reusable and/or recyclable containers for shipping your products.
- Repair and reuse pallets or return them to your supplier.
- Reuse newspaper and shredded paper for packaging.
- Reuse foam packing peanuts, "bubblewrap," and cardboard boxes, or donate to another organization.

Equipment

- Rent equipment that is used only occasionally.
- Reuse worn out tires for landscaping, swings, etc.
- Purchase remanufactured office equipment.
- Establish a regular maintenance routine to prolong the life of equipment such as copiers, computers, and heavy tools.
- Use rechargeable batteries where practical.
- Install reusable furnace and air conditioner filters.
- Reclaim usable parts from old equipment.
- Recharge fax and printer cartridges or return them to the suppliers for remanufacture.
- Sell or give old furniture and equipment to other businesses, local charitable organizations, or employees.

Organic Waste

- Compost yard trimmings or ask your landscape contractor to compost them.
- If unable to compost on site, investigate participating in a municipal composting program.
- Choose a landscape design that needs low maintenance.
- Use a worm bin to convert non-fatty food wastes into potting soil (called ermicompost).
- Use a mulching lawnmower and leave grass clippings on the lawn.

Inventory/Purchasing

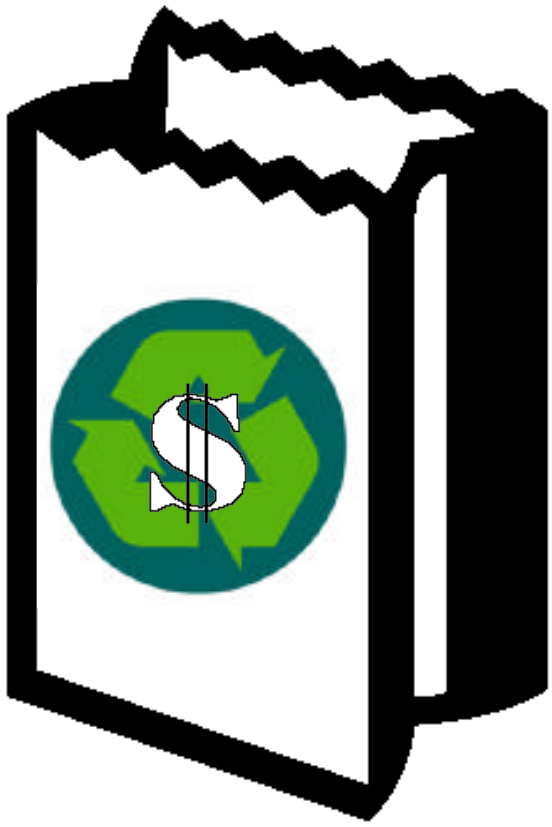
- Implement an improved system (such as systems based on optical scanners) to provide more precise control over supplies.
- Avoid ordering excess supplies that may never be used.
- Advertise surplus and reusable waste items through a materials exchange.
- Set up an area in your business for employees to exchange used items.
- Donate surplus products to food banks, if still edible.
- Substitute less toxic or nontoxic products for products such as inks, paints, and cleaning solvents.
- Use products that promote waste reduction (products that are more durable, of higher quality, recyclable, reusable).
- Where appropriate, order supplies in bulk to reduce excess packaging.

Buying Recycled Products

The term “recycled product” describes a product produced in whole or in part from secondary material recovered from pre-consumer or post-consumer waste. Recycled product may also refer a product that has been rebuild, such as a rebuilt engine.

The overall goal of a “Buy Recycled” program is to "close-the-loop" by demonstrating that a demand exists for recycled products. This provides an incentive for manufacturers to make investments in new recycling equipment. Buying recycled content materials is not only a positive reinforcement for recycling, but a key positive reinforcement for staff involved in recycling.

South Carolina law encourages state government to include a twenty five percent preference for recycled products subject to availability. Additionally, a number of local governments and regional organizations in South Carolina have instituted buying policies that favor recycled products. At the national level, the Environmental Protection Agency (EPA) has published purchasing guidelines for five products: recycled paper and paper products, rerefined oil, retread tires, building insulation, and cement and concrete made with fly ash.



Businesses and non-profits in South Carolina also are beginning to use recycled products, but much more remains to be done. Buying recycled products, a major step in the waste reduction and recycling process, requires that the following tasks be accomplished:

How to Implement a Recycled Product Purchasing Program

1. **Make a Commitment to Buy:** Establish a policy to buy recycled products. This commitment will provide leadership to users. It shows manufacturers and suppliers that a consistent, long-term demand exists.

2. **Review Purchasing Specifications:** Review existing specifications to eliminate prohibitions or limitations against recycled products. This includes obvious clauses such as "virgin products only" and more subtle specifications such as brightness levels of paper.

3. **Use Common Definitions and Percentages:** Organizations should use existing minimum content standards and definitions. Manufacturers cannot supply different products for every organization. Standard specifications enable manufacturers to offer commodity items at a lower cost than specialty items.

4. **Buy a Variety of Recycled Products:** Even though paper makes up the largest portion of the waste stream, buying recycled paper alone is not enough. Consider buying these recycled products:

Paper:	**letterheads** **corrugated** **files/folders** **adding machine tape** **food service products** **fax paper** **printing papers**	**copy paper** **newsprint** **packaging** **cash register tape** **pads** **bond offset & mimeo** **envelopes**
Plastics:	**garbage bags** **carpets** **collection containers** **mats** **parking stops** **wall partitions**	**brooms** **buckets/trash cans** **lumber** **office supplies** **urinal screens**
Rubber:	**retread tires** **floor tiles**	**floor mats**
Other:	**uniforms,** **rerefined oil** **wiping cloths**	**auto parts** **compost**

Also consider using recycling services such as tire retreading and oil recycling companies.

5. **Test Products:** Test recycled products to determine how they work on certain equipment and for particular end use before purchasing large amounts. Consider "blind" tests of products to avoid bias against recycled products.

6. **Use a Phase-In Approach:** It is wise to phase-in the use of recycled products so that users can adjust to the program and manufacturers can make capital investments to produce recycled products.

7. **Offer Price Incentives:** Recycled products may be more expensive than virgin products. This may be due to the small number of manufacturers producing recycled products or changing economics conditions. The following three measures have been used by public/ governmental organizations to fulfill commitments to buy recycled products:

    a. Offer a small price preference to suppliers (allow recycled products to be five to ten percent more expensive).

    b. Consider life-cycle costing (where factors such as disposal costs are factored into the initial price).

    c. Establish set-asides (where a certain percentage of purchases are reserved for recycled products.)

    Many public sector organizations have adopted price incentives as an investment in market development. Some private sector organizations have simply demanded that suppliers provide materials with recycled content. Depending upon the size of the organization, negotiations often lead to the securing of recycled content materials at no additional expense when compared to all virgin content materials.

8. **Foster Cooperation Among Manufacturers, Vendors and Users:** Organizations must actively solicit bids from manufacturers and vendors of recycled products and widely publicize the bids. Manufacturers and vendors must be encouraged to provide a wide range of products and let users know about them.

9. **Participate in Cooperative Purchasing:** Organizations should join together to buy recycled products. Cooperative purchases expand the volume purchased, reduce unit costs, help ensure availability, and establish common specifications.

10. **Waste Reduction and Recyclability:** In addition to buying recycled products, organizations should buy recyclable products.

11. **Educate Employees:** Encourage your employees to request recycled products for their office product needs.

12. **Keep Records:** Keep good records on the recycled products you buy,their costs, and performance.

13. **Publicize Your Efforts:** Provide information on the amount of recycled products purchased. This will encourage enthusiasm and increased participation in the program. It may encourage other organizations to establish similar efforts.

Implementation Schedules for Year One

The charts below present reasonable time frames within a 12-month period for implementing waste reduction and recycling programs. Some organizations may be able to move faster than others but one year is generally sufficient for new programs to be established. These charts can be used by program managers to track the progress of each program and to prepare annual progress reports.

Waste Reduction Program

Months	1	2	3	4	5	6	7	8	9	10	11	12
Secure top level management support												
Appoint program coordinator												
Conduct waste audit												
Establish waste reduction and recycling policies												
Publicize program kick-off												
Educate/train staff												
Institute program												
• Initiate paper reduction strategies												
• Develop and initiate "Buy Recycled" campaign												
• Establish inventory control system												
• Conduct semi-annual donation drive												
Track program progress and provide feedback												
Develop and present annual progress report												

Office Recycling Program

Months	1	2	3	4	5	6	7	8	9	10	11	12
Obtain support of Executive Management												
Designate coordinator and, if necessary, program monitors												
Determine types and amounts of recyclables generated												
Survey/select markets												
Develop collection system for each recyclable												
Publicize program kick-off Educate/train employees												
Initiate program												
Publicize program results periodically												
Develop and distribute annual progress report												

part

6 Evaluation

Evaluation is an ongoing process that will measure your success and help determine corrections needed in planning. It is useful to develop both formal and informal measures of program success. While it is beyond the scope of this manual to go into detail in evaluation techniques, use the following as a guide to the types and sources of information which need to be gathered in the evaluation process.

The recycling team is a key source of feedback. They should be operating in an environment where their comments are heard and acted upon. They will be a valuable resource in helping gather information from other sources also.

The hotel staff are a key source of information. By having an open team approach, valuable feedback will be derived. Hotel staff are key in implementing plans. They are on the "front-lines" of recycling. Their input and suggestions for improvement are critical to implementation of a good plan.

Guests of the hotel are a key source of information. Both formal and informal methods to gauge their attitudes are needed. They are the ultimate "boss". It pays to find out what they think. Not only can their attitudes be reflected in future actions, but a positive statement is made by asking the customer, "What can we do better?"

How Much Have We Recycled?

One measure of evaluation is economic impact. Accounting figures can be used to compare the reduced cost of solid waste disposal with the cost of recycling. Hopefully the hotel will realize a reduction in out to pocket costs. It is important to also incorporate the intangible or advertising value associated with recycling when conducting the economic analysis.

Another measure of program success is the percent of the solid waste stream which has been diverted from the landfill. This measure requires that the total weight of recyclables and solid waste which is being landfilled are both known. The amount of material being recycled can then be expressed as a percentage of the total solid waste stream generated by the property.

It will be a source of pride and accomplishment to be able to accurately say what percent of solid waste generated was diverted from the landfill by recycling. In order to do this accurate records must be maintained. If your waste and recycling processors provide weight figures, then the it is simply a matter of analyzing the existing data. If weights are not available, then the data in Figure 2 can be used to estimate weights.

Volume to Weight Conversion for Selected Items

Sample Weight to Volume Conversion Factors for Recyclable Material

Figure 2

PAPER	VOLUME	WEIGHT IN POUNDS
Newsprint, Loose	one cubic yard	360-500
Newsprint, compacted	one cubic yard	720-1000
Newsprint	12" stack	35
Corrugated cardboard, loose	one cubic yard	50-150
Corrugated cardboard, compacted	one cubic yard	300-500 C
Corrugated cardboard, baled	one cubic yard	1000-1100
Computer paper, stacked	one cubic yard	655
Computer paper, compacted/baled	one cubic yard	1310
Mixed ledger/office paper, flat, uncompacted	one cubic yard	380
Mixed ledger/office paper, flat, compacted	one cubic yard	755
Mixed ledger/office paper, crumpled, uncompacted	one cubic yard	110-205
Mixed ledger/office paper, crumpled, compacted	one cubic yard	610
GLASS		
Glass, whole bottles	one cubic yard	500-700
Glass, semi crushed	one cubic yard	1000-1800
Glass, crushed (mechanically)	one cubic yard	1800-2700
Glass, whole bottles	one full grocery bag	16
Glass, uncrushed to manually broken	55 gallon drum	125-500
PET soda bottles, whole, loose	one cubic yard	30-40
PET soda bottles, whole, loose	gaylord*	40-53
PET soda bottles, baled	30’x 48’x 60'	500
HPDE (dairy only), whole, loose	one cubic yard	24
HPDE (dairy only), baled	30’x 48’x 60'	500-800
HPDE (mixed), baled	30’x 48’x 60'	600-900
ALUMINUM		
Aluminum cans, whole	one cubic yard	50-74
Aluminum cans, whole	one fulldraft paper grocery bag	average 1.5
Aluminum cans	one 55 gallon plastic bag	13-20
Ferrous cans, whole	one cubic yard	150

Ferrous cans, flattened	one cubic yard	850
ORGANIC		
Leaves, uncompacted	one cubic yard	250-500
Leaves, compacted	one cubic yard	320-450
Leaves, vacuumed	one cubic yard	350
Wood chips	one cubic yard	500
Grass clippings, uncompacted	one cubic yard	350-450
Grass clippings, compacted	one cubic yard	550-1500
CAR BY-PRODUCTS		
Used Motor Oil	one gallon	7
Tire - Passenger Car	one	12
Tire - Truck	one	60
Food Waste, solid and liquid fats	55 gallon drum	412

** Gaylord size most commonly used 40' x 48' x 36' National Recycling Coalition Measurement Standards and Reporting Guidelines, October 31, 1989*

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