

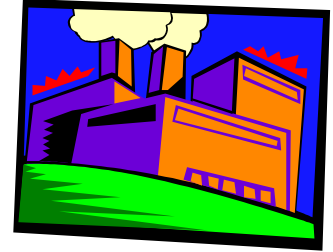
RECYCLING IN MANUFACTURING & WAREHOUSE OPERATIONS

CITY OF HARRISBURG
DEPARTMENT OF PUBLIC WORKS

In establishing a program for your manufacturing and/or warehouse operation, you should concentrate on areas that produce the most significant amounts of waste. Logical areas include administrative offices, assembly floors, food service areas, and staff lounges.

The Requirements

The Municipal Waste Planning, Recycling and Waste Reduction Act of 1988 (Act 101) requires commercial, institutional and municipal establishments located in Pennsylvania's mandated municipalities to recycle high-grade office paper, corrugated paper, aluminum and leaf waste. In addition, establishments must recycle any other materials included in the municipality's recycling ordinance or regulations, which may include glass, newsprint, plastics, and/or steel and bimetallic cans. As a mandated municipality, businesses and institutions with facilities located within the City of Harrisburg must implement recycling programs.



The City of Harrisburg's recycling requirements are as follows:

- All commercial, institutional and municipal establishments must source separate the following materials:
 - High grade office paper
 - Corrugated cardboard
 - Glass containers
 - Aluminum cans
 - Any other recyclables that may be designated by the City
- Those served by the City's curbside program must set their materials at the curb in the City's blue recycling bins for collection.
- Those not served by the City's curbside program must arrange for the collection and recycling of all designated materials.
- All commercial, institutional and municipal entities must provide written documentation as to the type and weight of materials recycled annually. Reports are due to the City by January 15 of each year on a form provided by the City.

Recycling Corrugated Cardboard

Corrugated cardboard is probably the most significant recyclable material generated in warehouse operations. It may also be a very significant portion of the recyclables generated in a manufacturing operation, depending on the type of manufacturing in a given facility. It is necessary to determine how much of the corrugated cardboard can be recycled before decisions can be made on the level of recycling service desired. Some considerations are:

- Location and capacity of potential buyers
- Current and historical prices paid per ton by the buyers
- Minimum and maximum quantities acceptable for pick-up
- Whether the buyer will pick up loose sheets or will require compacting or baling



Recycling Works

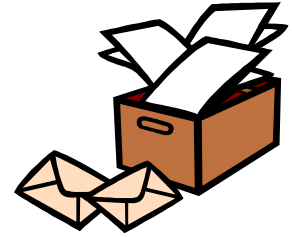
CITY OF HARRISBURG
DEPARTMENT OF
PUBLIC WORKS

1690 S. 19th Street
Harrisburg, PA 17104

Phone: (717) 236-4802

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- Price differentials for different levels of service
- Whether the buyer will furnish collection containers without charge
- Contamination restrictions



Your operation may want to bale or flatten cardboard to reduce volume. Large manufacturing facilities may find it efficient to purchase a fork lift and designate one employee to collect, bale and load the cardboard.

It may be also helpful to consult other businesses that are currently recycling corrugated cardboard for handling suggestions or information about experience with buyers, as well as to look into reuse options.

Reusing Corrugated Cardboard

While corrugated containers are recyclable, many businesses recognize the reuse value of these containers and keep them in circulation in a number of ways:

- Donate or sell cardboard containers to other firms. Most boxes can be given away, and there is a significant market for "gaylord" boxes in many areas. Gaylords are standard industrial strength containers (usually 4' x 4' x 4') used to transport and store bulk materials.
- Distribute corrugated boxes internally. Businesses frequently give these boxes to employees or others to use for moving, wrapping gifts, etc. These boxes may also be reused by the firm to store and ship products and recyclable materials.

Steps for Successful Recycling in Manufacturing & Warehouse Operations

1. Perform a waste assessment. Walk through your facility noting what type of waste is discarded in each area. A walk-through will help you determine which types of containers are needed. Typical programs are likely to involve some of the following:
 - **Administrative and office areas** - office paper, corrugated cardboard, other paper, cans, bottles, toner cartridges.
 - **Cafeteria/food service areas** - glass, metal, cans, plastic containers, corrugated cardboard (make sure that food waste is separated from recyclables).
 - **Manufacturing/warehousing areas** - corrugated cardboard and a range of other materials based on the type of operation. If you have materials that are produced in large volumes on a regular basis, you should probably look into markets for these materials.
2. Investigate reusing the waste that is produced in your plant, such as corrugated cardboard.
3. Based on the results of the waste assessment, set up appropriate recycling programs in each area.



4. Inform employees about proper recycling procedures by issuing a memo and reviewing procedures at staff meetings or at the beginning of shifts. Make sure to follow up to ensure that procedures are being followed and further educate employees as necessary.
5. Set up a log book or a receipt system to record the volume of recyclables leaving the premises. This will enable you to receive proper compensation for your materials and to take appropriate action if volumes decrease.
6. Include recycling information in your orientation for new employees.
7. After policies have been established, explain the recycling program to your custodial staff. Train them by showing them what to do with new containers, how to collect waste separately and where to take separated materials. For a 24-hour operation, plan pick-ups on appropriate shifts so that you do not have a problem with overflowing containers.

8. Ask for assistance from your custodial staff in monitoring the program. Have them inform you of areas with major contamination problems or where employees are not participating, and follow up with improved recycling education in these areas.
9. If appropriate, make sure that your grounds crew knows to keep yard waste separate from other waste.
10. Ask your waste hauler for advice about keeping recyclables and wet waste separate. Depending on the company's trucks and equipment, your hauler may want to give you separate containers for trash and recyclables.
11. Remind employees to keep food waste out of recycling containers and trash. Food waste should be handled separately from trash and recyclables.



For further information...

The following fact sheets are available from the City of Harrisburg's Department of Public Works:

- Recycling at Work: Information for Harrisburg Businesses & Institutions
- Developing a Recycling Program at Work
- Conducting a Waste Assessment
- Recycling in Hospitals & Health Care Institutions
- Recycling in Office Buildings
- Recycling in Hotels & Motels
- Recycling in Retail Operations
- Recycling in Restaurants and Taverns
- Recycling in Schools, Colleges and Universities
- Helping to Solve Solid Waste Problems in Your Business or Institution
- Recycling in Apartments & Condominiums
- Recycling at Outdoor & Special Events



To obtain one or more of these fact sheets, contact:

City of Harrisburg	(717) 236-4802
Department of Public Works	Fax (717) 236-9051
1690 S. 19 th Street	
Harrisburg, PA 17104	

For more detailed information about implementing a waste reduction and recycling program in your workplace:

Visit the Pennsylvania Department of Environmental Protection website at www.dep.state.pa.us, click on the "Recycling Works" logo, and go to "Commercial Recycling."

The Professional Recyclers of Pennsylvania (PROP) has published "Developing a Waste Reduction and Recycling Program for Commercial, Institutional, Industrial and Municipal Establishments." To obtain a copy, contact PROP at:

P.O. Box 25	e-mail prop@epix.net
Bellwood, PA 16617	www.proprecycles.org
(814) 742-7777	
Fax (814) 742-8838	