

## Recycling in Pennsylvania Manufacturing and Warehouse Operations

Recycling at manufacturing and warehouse operations throughout Pennsylvania can make a positive impact on our environment and our local communities due to their large-scale resource consumption potential. Owners, operators, and employees of these facilities, working together with their local municipality, can implement and maintain a successful and impactful recycling program.

**Recycling is local in Pennsylvania** - 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. Businesses and institutions with facilities located within mandated municipalities must implement recycling programs according to local requirements, those not, are encouraged to recycle.

### General municipal recycling requirements are as follows:

- All commercial, institutional, and municipal establishments must source separate the following materials:
  - High grade office paper;
  - Corrugated cardboard;
  - Aluminum cans;
  - Leaf waste; and
  - Any other recyclables that may be designated by the municipality.
- These establishments 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 municipality by January 31 of each year on a form provided by the municipality.

### Steps for Successful Recycling in Manufacturing and Warehouse Operations

When establishing a recycling 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.

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 consider 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 change.
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.
12. Manufacturers and warehouse operations that have facilities in multiple locations need to coordinate their recycling efforts with each local municipality where they operate. Each municipality may have different recycling processes – remember all recycling is local in Pennsylvania.

**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 each 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
- 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 forklift and designate specific employee(s) 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 consider 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 few 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.

Many wastes generated at manufacturing and warehousing facilities can be recycled. It is important that owners, operators, and employees and the local municipality all work together to implement and maintain a recycling program at these facilities.

Manufacturers and warehouse operators, restaurants and taverns, hotels and motels, offices, schools, retail operations, hospitals, and other establishments each generate various types and amounts of wastes and have their own unique recycling opportunities. To learn more on how different types of establishments can implement a recycling program, please refer to our other Recycling Fact Sheets available at: <http://www.depgreenport.state.pa.us/elibrary/> (select Publications and then Waste Management). Though each workplace may have differences in the waste they produce and what they can recycle, all have the capability of significantly reducing what and how much waste is disposed in our landfills. By recycling they can also save energy and reduce carbon emissions, save natural resources, and limit operational costs. It is important that we all work together with our employers and local municipalities to implement and maintain a recycling program at our places of work.

For more detailed information about recycling in Pennsylvania, visit the Pennsylvania Department of Environmental Protection, Bureau of Waste Management, Recycling in Pennsylvania website at:  
<https://www.dep.pa.gov/Business/Land/Waste/Recycling>.