Welcome to the World of Refrigerated Warehousing & Logistics
The refrigerated warehouse your company operates is a part of a network of more than a thousand specially designed and strategically located operations in nearly fifty countries around the world.

It takes a special team to make all the parts work together. You are now a part of that team, helping to move food and other temperature-sensitive products to where they need to be, when they need to be there, in the most efficient way and in the best possible condition.

In your own everyday life, you’ve enjoyed the things that people in jobs just like yours worked to make possible last year and a hundred years ago—food, medicine, and other perishable products that can’t be stored or transported without refrigerated care. The frozen pizza you buy in the supermarket, your Thanksgiving turkey, the cheeseburger and shake at the drive-in, and the convenient microwave dinner you enjoy, all came through a refrigerated warehouse staffed with folks just like you.

It’s a job that requires attention to detail—because it has to be done properly. There’s no second-time-around for frozen foods. The companies that research, develop, and produce the thousands of products that have become a part of our lives, the engineers who design and build state-of-the-art refrigerated warehouses, and the restaurants and supermarkets that are the last link to the consumer, all depend on this public refrigerated warehouse to maintain the quality and value of products between the time they leave the manufacturer and the time they land in the shopping basket or on the table of the consumer.

If this sounds like an important job, it is! We have prepared this booklet to help you get started. We hope that it will spark your interest and that you will want to learn more about our special industry. Welcome to the world of public refrigerated warehousing and logistics.
The public refrigerated warehousing industry is strong and growing, but it is a small industry and most people have never even heard of it. To help you learn about some of the important terms used in the industry, here are a few questions and answers that come up more often than others:

### What exactly does it mean to be a “Public Refrigerated Warehouse”?

There are basically two types of refrigerated warehouses: public and private. A private refrigerated warehouse is one that is operated by a company that produces or owns the products that are kept in the warehouse—usually a food manufacturer or a grocery company. It is used to store only that company’s products.

Public Refrigerated Warehouses, or PRWs, on the other hand, store and distribute products for many companies. Companies such as Nestle, Good Humor, Tyson, Ocean Spray, McDonalds, Kroger, and Safeway, as well as many smaller companies, rely on Public Refrigerated Warehouses for all or part of their storage and distribution needs. These companies are our customers.

### Why don’t customers just build and operate their own warehouses?

Good question! Some companies with limited distribution requirements do just that. But, distribution today has become regional, national, and even international. Many refrigerated warehouses would have to be built to care for a company’s products each step along the way. That would take great amounts of money, not only to build, but to operate as well. This is money that the customer would not have available to use for re-

### Frequently Asked Questions

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- **Also, if a company ever needed to adjust or shift its distribution activities, it would have to build another refrigerated warehouse. It’s a lot faster, easier, and less expensive**
when there is a professional PRW operation in place and ready to serve.

**How long has the PRW industry been serving customers?**

The commercial use of mechanical refrigeration goes back about 125 years. In fact, the organization which was later to become the International Association of Refrigerated Warehouses, or IARW, had its beginnings when sixteen warehousemen from fourteen cities met in Chicago in 1891 and formed the American Warehousemen’s Association. Of the sixteen warehousemen at that first meeting, five had cold storage operations. Those five PRWs were among the first to put the new refrigeration and freezing technology to use in caring for their customers’ products.

For the next fifty years or so, public refrigerated warehouses were used primarily for the long-term storage of products. Storage time was often six to twelve months, or even longer. As more customers came to rely on PRWs, it became clear that there was a need to develop sound technical knowledge about cold storage—information that could be used to maintain products in the best possible condition while they were in the warehouseman’s custody. In response to this

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**PRW Lingo**

**PRWs:** Common industry acronym for Public Refrigerated Warehouses.
need, the World Food Logistics Organization (WFLO) was founded in 1943. The original name of the organization was The Refrigeration Research Foundation, and its mission was to undertake research in the science of refrigeration and the education of refrigerated warehouse professionals.

There were great gains in frozen food manufacturing methods in the 1930s and 1940s, and sales of frozen food exploded in the late 1940s and during the 1950s. PRWs, however, were still relied upon for mainly for long-term storage. That all started to change in the 1970s, just about the time that IARW initiated a program to call attention to services other than long-term storage. The IARW Return on Investment Kit, which has been updated several times and is still widely used, went on to demonstrate that PRWs could perform these services not only well, but economically too. Since then, more and more PRWs have expanded the menu of services they offer. What was once a long-term frozen storage industry now offers freezing, packaging, transportation, special handling, multiple temperatures, logistics, inventory management, and information services. Customers responded so enthusiastically to the new range of services that, for a number of years, they all but stopped building their own private refrigerated facilities.

Over the past 25 years, PRWs have expanded in number, size, location, and capability. Today, there are more than six hundred public refrigerated warehouses in North America alone, and most of these facilities offer the latest computer and warehousing technology necessary to meet all of their customers’ storage and distribution needs. PRWs now operate more than 80% of all freezer space in the US. This is a reflection of our customers’ confidence in the job we do, and a good indication that you are coming into this industry at an exciting time.

What exactly is “logistics”? Basically, logistics is all the planning...
and management required to pull together the material and resources needed to produce a product and move it efficiently through all necessary steps to get to the ultimate user. PRWs are an important part of the logistics system. Just as you are a part of your company’s team, your company is also part of a larger logistics team. Other members of the logistics team include producers, processors, wholesalers, transportation companies, and supermarkets, as well as others who handle or arrange for moving the product or its ingredients.

Let’s take a brief look at the logistics process as it affects frozen french fried potatoes. In this example, the logistics circuit begins with moving the potatoes from the field to the food processor, where they are washed, peeled, cut, and processed. The cutting process uses a water gun which speeds the potatoes through a series of knife configurations based on the specific cut (shoestring, wedge, etc.). Processing also involves partial frying; application of coatings, flavorings, or spices; freezing; and packaging. (Getting the flavorings, preservatives, and packaging to the food processor is also part of the logistics process.) The newly minted frozen french fries are then shipped to a refrigerated warehouse for storage and distribution. When a supermarket or restaurant chain has available space and is ready to take

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**Fun Facts**

The most common use of the refrigerant ammonia is agricultural—fertilizer.
delivery, the warehouse is notified and the french fries are shipped to the store and put on display, or distributed to individual restaurants. It sounds like a very simple process, but if it doesn’t work almost perfectly, freezer shelves at the supermarket won’t have any fries for part of the year and too many potatoes will stack up unsold at other times of the year.

The measure of good logistics is how smoothly and efficiently product moves through the distribution channel to the ultimate consumer. The industry uses the term “seamless distribution” to describe how the operation needs to go.

**What are some of the important things I need to know in my job?**

Every job in every company is a bit different, and you’ll be getting lots of help and instructions from your supervisor. But there are a few things that are important in most PRW jobs, and customer satisfaction is right up at the top. The main thing to remember is that nearly everything you do affects customer satisfaction—even if you don’t meet a customer face-to-face. In business today, much of the information and communication between companies and customers is handled by phone, computers, and fax machines, but there is absolutely no substitute for doing things properly. This might involve following instructions, not losing forms, not damaging cases of products, maintaining the correct temperatures, applying the right labels, and so on. If we do any of these things incorrectly, it can cost money, hurt our reputation, or result in a lost customer. If we do things properly, everyone will enjoy the results. Without satisfied customers, the PRW industry cannot survive.

Safety is also crucially important—your safety, the safety of your co-workers, and the safety of the food products you handle. We are pleased to be able to say that companies in the PRW industry generally have a very good employee safety record. Even though you may be working with heavy equipment, there is little risk of in-
ping, and that products must be placed in pre-cooled vehicles or rail cars when leaving the warehouse. Your company has technical information on temperature requirements from IARW and WFLO to help you do your job. One excellent resource is WFLO’s Commodity Storage Manual, which contains up-to-date scientific guidelines for proper handling of any product likely to land on your dock. The Commodity Storage Manual, for example, can tell you if a product puts out an odor that is apt to be absorbed by other items stored nearby. The more you learn about temperature and other storage requirements, the better it is for you, your company, your customer, and for the final consumer.

All the manuals in the world, all the computers in the world, and all the knowledge in the world won’t guarantee that products get the prompt and proper handling and attention they require. That’s where you come in. One fact stands out after more than fifty years of refrigeration research—frozen foods can be badly damaged if they are subjected to temperature abuse—thawing and re-freezing. Time out of the freezer should be measured

PRW Lingo

First in, first out: A method of inventory rotation in which the oldest items are shipped first. It is also a method of inventory valuation in which cost is based on the oldest purchased materials.

jury if you are properly trained in its use and you follow proper procedures. You’ll be provided with much of the information needed to make your job safe—but it’s up to you to ask questions and get assistance from your supervisors if you are uncomfortable or unsure about any safety matters. Keep in mind that the success of our work depends on your health and ability, so work smart and work safe, and don’t hesitate to call attention to any problems or concerns you may have.

Food safety is also of paramount importance. The products we care for in the PRW are all “temperature-sensitive.” Whether it’s produce, ice cream, medicine, cheese, meat, seafood, or French fries, different products have different temperature requirements. It is essential that proper temperatures be maintained throughout the “cold chain” in order to ensure that the products are not damaged, that quality is not impaired, and that harmful bacteria are not allowed to grow. This means that product must be stored in the proper area of the facility, that exposure to outside temperature be minimized during transfer for shipping, and that products must be placed in pre-cooled vehicles or rail cars when leaving the warehouse.
in minutes, not hours. As time on the dock ticks away, so does the quality of the product—and the customer’s satisfaction. Customers know and appreciate when care and attention is part of the daily routine. We are all counting on you to do a good job!

PRWs typically do not have huge numbers of employees. Although warehouses come in all sizes, the average PRW is roughly three million cubic feet in volume—that’s about the size of a football field six stories tall. The office will typically employ somewhere between five and ten people to handle sales, management, finance, and related administrative functions. In the warehouse itself, there may be another twenty or so employees who are responsible for keeping the building cold, keeping it clean, and moving and storing millions of pounds of products. As you can see, you’re now part of a small, select group of people with responsibility for the safe handling and delivery of tons and tons of food and other temperature-sensitive products.

**What kind of things will I learn how to do?**

Depending on your exact job, you’ll learn many important things.

If you’re actually working in the warehouse, you’ll develop an understanding of interesting and important food distribution procedures and, before long, you’ll be able to answer questions such as these:

- What is the most important thing to do as you unload an incoming truck?
- Why is accurate paperwork necessary?
- What should you check for when inspecting products coming into the warehouse?
- What should you look for when checking a pallet?
- What is one of the most impor-

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**PRW Lingo**

**Bill of Lading:** A contract between the shipper and carrier that provides proof that the merchandise was transferred from the shipper to the consignee and that the carrier has assumed responsibility for the cargo until it is delivered. All carriers and freight forwarders issue B/Ls, but brokers do not issue them.
In 2004 the USDA reported that there were more than 2,357.10 million cubic feet (66.7 cubic meters) of refrigerated space in the United States, 155.40 (4.4) million in Great Britain, and 223.70 (6.3) million in Canada.

### Fun Facts

#### What are some important aspects about freezing food products?
- Is it better to load a rack beginning at the bottom or beginning at the top?
- Why should fresh apples never be stored near products with high fat content?
- When you receive an order for loading, what do you do first?
- If you see a damaged box ready for shipping, what should you do?

Not only will you learn these things, and more, from your new job, but you may also be surprised to discover that much of what you learn will be useful to you throughout your career.

#### Will I ever work directly with customers?
Some PRW employees work with customers on a regular basis, but most only work with customers once in a while. New employees don’t work directly with customers very much, but there’s no way to predict when you may be needed to help solve a customer problem. In the past, PRW employees have been called on to answer the following questions from customers:

- In freezing minced chicken, we have observed a greenish color. What could be causing this problem?
- What is the recommended way to thaw milk?
- How can you control shrinkage while storing boneless shank meat at -5°F?
- How quickly must sauerkraut be frozen to control gas development?
- Can you freeze whole Jerusalem artichokes directly from the field?

Of course, no one is expected to be able to answer all these questions—that’s why IARW and WFLO have prepared a number of reference manuals which you will learn about in the months ahead. And IARW and WFLO also have staff and scientists whom you can call upon if the information you need isn’t available at the PRW or covered in the manuals.

### PRW Lingo

**Push-back Racks:** A pallet rack system which permits units to be stored by being pushed up a gently graded ramp, allowing for deep storage at each level. Wheels in the system allow pallets to flow down the ramp to the aisle.
What to Expect from the PRW Industry

In the pages above, we singled out customer satisfaction as among the most important responsibilities of every PRW employee. Some businesses outside the PRW industry have thousands of customers. A PRW’s customer list is more apt to be in the tens or in the hundreds. One thing is the same, whether you have fifty customers or five thousand: if your company does it right, word gets around, and if your company doesn’t get it right, word gets around even faster! Gaining one more customer, whether you now have fifty or five thousand, spells success for the company and the staff that made it possible.

Depending on your precise job requirements, you may—now or later—have need for access to the resources of IARW and WFLO. Your employer has probably set up procedures for tapping into these resources, which include about a dozen manuals covering a wide range of financial, administrative, food handling, and warehouse operations. IARW and WFLO also publish nearly fifty newsletters each year, on subjects such as safety, warehouse law, government affairs, information technology, and energy services. From time to time you may need to consult the Operations Manual or the Commodity Storage Manual or other IARW-WFLO resources. Be sure to ask your supervisor about these publications, and find out which ones are best suited to help you do your job better.

Your company offers many opportunities for growth and development. With a relatively small number of people staffing a PRW, management is able to determine where training for enhanced job performance—or advancement—can benefit the employee and the company. Some companies have in-house training programs supplemented by programs offered by IARW and WFLO. Others rely exclusively on IARW and WFLO for their training and development needs. In either case, your career growth in the PRW industry is what you want to make it. We encourage you to read more about the PRW industry, to ask questions, and, if you can, to
take classes that will help you to better serve our customers. Remember, your company can only grow if it is successful, and a growing company almost always provides more job opportunities for its employees.

As you learn more about your work and about the PRW business, IARW and WFLO will be there to help you build a stronger career, a stronger company and a stronger industry.

Welcome to your new job, your company, and to the public refrigerated warehouse and logistics industry. We hope this is the beginning of a long and successful career in our small but important and very special industry.

“...serving the global food industry.”