



THE **TOP 10**

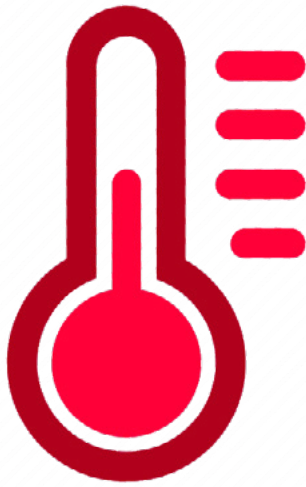
THINGS TO KNOW ABOUT

WAREHOUSE TEMPERATURE CONTROL

IN THE **FOOD STORAGE INDUSTRY**



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**A FOOD STORAGE
WAREHOUSE
OFTEN HAS
THREE
TEMPERATURE
ZONES:
AMBIENT,
COOLER
AND FROZEN.**

Introduction

As part of the foodservice distribution cold chain, a food warehouse center is a critical component of maintaining product integrity and protecting food items from contaminants. A food storage warehouse often has three temperature zones—ambient, cooler and frozen. Since many large facilities have both ambient and refrigerated receiving dock areas to maintain temperature control as much as possible, we're sharing the top 10 things to know about warehouse temperature control in the food storage industry: common warehouse systems or processes to know about, and how they help control temperature for commercial food storage facilities.



PRO TIP #1:

PLAN FOR TEMPERATURE MONITORING SYSTEMS.

Preventing temperature variances is critical in a food storage facility, which is why monitoring devices are utilized in those spaces. Temperature monitoring systems keep tabs on warehouse air, sending automatic alerts when the temperature drops out of the safe range for the products in the area. Many systems also keep temperature logs for a record of compliance for any health and safety reviews. Backup generators for cooling systems are also in place in compliant facilities so that food products are in safe temperatures in the event of power outages.

TEMPERATURE MONITORING SYSTEMS KEEP TABS ON WAREHOUSE AIR, SENDING AUTOMATIC ALERTS WHEN THE TEMPERATURE DROPS OUT OF THE SAFE RANGE FOR THE PRODUCTS IN THE AREA.



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PRO TIP #3:

MAXIMIZE SPACE WITH DENSE STORAGE.

High-density, rack-supported storage provided in automated storage and retrieval systems (AS/RS) allows for tall and deep storage cubes. This method not only reduces a storage footprint, it will also cut down on the area that needs to be kept cold. High-density storage also controls heat loss. When the area that needs to be kept cold is smaller, there is less roof space where heat can escape. Plus, when products are cold from dense storage, they will not negatively impact any cold area if they are moved. Products at ambient temperature will add heat to a cooled area, creating the need for more energy expenditure to return to the appropriate levels.

THIS METHOD NOT ONLY REDUCES A STORAGE FOOTPRINT, IT WILL ALSO CUT DOWN ON THE AREA THAT NEEDS TO BE KEPT COLD.



PRO TIP #4:

AUTOMATED STORAGE REDUCES TEMPERATURE VARIATIONS.

Automated storage and retrieval systems (AS/RS) are computer-controlled systems that shelve, store and retrieve products in warehouse environments. Automated storage limits the amount of heat that enters a cold area, putting less stress on the cooling system. In addition, palletizing that is done by robotics in cold storage areas minimizes the loss of cold air as happens with the movement in and out of employees when warmer air repeatedly enters the cooled zone. Automated storage shows potential for efficiency as well as energy cost savings for food warehouses.

AUTOMATED STORAGE LIMITS THE AMOUNT OF HEAT THAT ENTERS A COLD AREA, PUTTING LESS STRESS ON THE COOLING SYSTEM.

PRO TIP #5:

PREVENT EQUIPMENT FROM BEING AFFECTED BY COLD.

In the efforts to keep certain foods at cold or freezing temperatures, consideration should be given to the equipment used in those areas. For example, the batteries in handheld devices are negatively impacted by cold temperatures, leading to a 40% to 50% degradation to battery life. Batteries in forklifts are also susceptible to extreme cold temperatures and may last only half the time as they would in ambient temperatures. There are also special scanning devices and touchscreens are made to respond to a gloved touch in areas that would be too uncomfortable for uncovered human skin.

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PRO TIP #6:

UTILIZE HIGH SPEED DOORS WHEREVER POSSIBLE.

In addition to minimizing the door openings in a space or limiting the traffic in and out of the area, savvy facilities managers also install high speed doors. High speed doors open and close quickly in order to accommodate movement in and out of specific areas without minimal compromise of the stored products inside. Doors that close too slowly allow the entry of warmer air which can negatively impact energy costs, temperature stability and food quality.

High speed doors are designed for high performance in various settings and come in different configurations and materials in order to meet specific warehouse situations. With high speed doors, you'll get maximum temperature and environmental control as well as significant barriers to environmental debris, pests and other contaminants.

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PRO TIP #7:

USE COLD STORAGE CURTAINS IN LOADING ZONES.

Cold storage curtains are value-conscious methods to partition or enclose specific areas in a warehouse. Cold storage curtains allow for visibility but contain temperatures in separate areas. These specialized curtains also maintain atmospheric conditions to any external changes to temperature and humidity don't affect internal spaces.

Loading zones and dock areas are great locations for cold storage curtains where a lot of activity could compromise internal temperatures if areas are left unprotected. These cold storage curtains also help save businesses money on energy costs because they help maintain appropriate temperature levels in separate areas.

THESE SPECIALIZED CURTAINS ALSO MAINTAIN ATMOSPHERIC CONDITIONS TO ANY EXTERNAL CHANGES TO TEMPERATURE AND HUMIDITY DON'T AFFECT INTERNAL SPACES.

PRO TIP #8:

AIR DOORS CAN KEEP TEMPERATURES STEADY.

The use of air doors or air curtains in food warehouses help keep temperatures level through the use of forced air at doorways and entryways. Air doors can be adjusted to provide the appropriate air temperature so there is not as much difference in the current air and the necessary temperature air range. Air doors can also save on energy costs, too, because they work to keep cold temperatures constant, reducing the need for unnecessary air conditioned air.

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PRO TIP #9:

ALWAYS MAINTAIN FDA COMPLIANCE.

Any food storage warehouse must follow the Food and Drug Administration's (FDA) safety guidelines for proper storage and handling. Companies that fail to follow these regulations face possible fines or suspension of a business operating license so it's critical to adhere to the guidelines.

The Food Safety Modernization Act (FSMA) was put into effect in 2011 to transition operations from working from a contamination resolution platform to one of contamination prevention. More information about FSMA and its guidelines can be found [here](#). It's also critical to have the appropriate schedules and plans available for FDA review and inspections when required so it's a good idea to keep them current and accurate.

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PRO TIP #10:

IMPROVE BUSINESS PROFITABILITY WITH CONSISTENT TEMPERATURE CONTROL.

While it may seem like food warehouse temperature control is a singular function, it has far-reaching impact on the business as a whole. Maintaining the proper temperatures in specific areas of the warehouse without repeated interference that lowers temperature results in less energy expenditures. If the temps are constantly in flux due to employees in and out of the area or if equipment simply isn't working properly, it takes more energy to get the cold temperatures back to normal ranges. This will then result in higher energy bills which affect the profitability of the business.

Another way to positively impact the bottom line of the business through temperature maintenance is controlling the integrity of the food products. When food experiences degradation or contamination, it is a loss that must be absorbed by the business, sometimes dramatically cutting into the profitability of the business. Keeping proper temperatures where food is stored is more than just a challenging exercise, it's a big part of the business bottom line.

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Conclusion

Keeping correct temperatures in a food warehouse center can be a challenge because of the variables in managing such a large space. Fortunately, there are methods, techniques and products that will help you achieve your major objective: maintaining product integrity. Knowing that the end user will receive high quality products is a great incentive but realizing that you won't take any losses due to improperly stored products is great.

Your business will also benefit from lower energy costs when there are systems in place to keep temperatures at the proper levels. Efficiencies in operations and special tools and environmental elements will ease the burden on your cooling systems which will decrease energy expenses for the business.

Putting the appropriate procedures and equipment in place will help you maintain temperature in your food storage warehouse—and benefit your customers and your business.

About



About the Author:



Mike Struempfer is President and CEO at Warehouse Technology, Inc. and Overhead Door Company of Greater Philadelphia. He has over 30 years of experience in the materials handling industry.

Since 1990, [Warehouse Technology & Overhead Door Company of Greater Philadelphia](#) has served the Northeast as a leading distributor, installer and servicer of loading dock equipment, overhead doors and warehouse storage systems. They offer the highest quality loading dock and ergonomic equipment as the exclusive Blue Giant representative in Pennsylvania, New Jersey, Delaware and Maryland.

They distribute an expanded selection of premium high-speed, sectional, insulated and impact doors by Overhead Door (as a Ribbon distributor), Wayne Dalton, Rytec, Flexon, Jamison and DL Manufacturing.

They are a solutions provider - a team of advisors, technicians and office staff dedicated to safety, integrity and follow-through.