


Material Handling MANAGEMENT

Climate Control



Seneca Foods' new dock seal helps keep the facility clean and improves employee safety.

A new type of dock seal has unexpected benefits for a frozen-vegetable distributor.

Facility temperature control is a delicate science. Whether it's for employee comfort or product quality, controlling climate is critical—and costly. Soaring energy costs have led to the development of various products designed to keep the inside in and the outside out.

Most of these new products, for obvious reasons, are focused on the loading dock. After all, the loading dock is the Achilles' heel of any manufacturing or distribution facility—the area most vulnerable to unwanted airflow.

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Most material handling managers would agree that conserving energy is a no brainer. Who doesn't want to pay less for electricity or gas? However, for facilities that handle perishables, climate control can be a matter of life and death. Even the slightest variation from a set temperature range can mean ruined product, lost profits, safety hazards and even government penalties.

The Seneca Foods (Marion, N.Y.) facility in Rochester, Minn., is one example. The warehouse stores and distributes frozen produce, such as carrots, corn, peas and other mixed vegetables. Temperatures at the loading docks are kept between 50°F to 55°F to ensure the integrity of the vegetables during handling.

Like any other freezer warehouse, the Seneca facility has its challenges. One recent problem was caused by warm air entering the facility during the summer months. Not only did the warm air waste the electricity used to keep the facility cold, it also created a safety hazard. When the warm air from the outside crept through the dock area and met the cold air in the warehouse, condensation developed, says Jeff Glasrud, warehouse manager at Seneca Foods' Rochester facility.

All six dock doors in the facility—three doors per dock—were equipped with dock plates and nylon brush seals. However, that didn't stop warm air from creeping into the facility through small gaps around the leveler.

"We had humidity coming in through the dock plate," Glasrud reports. "The floors began to 'sweat' because of the condensation, which led to a dangerous situation." The slippery floors meant less traction for lift trucks and pedestrians.

There was another potentially unsafe consequence: Warm air coming in through the dock and hitting the cold air in the facility created fog and even ice around the dock area. The rising steam reduced visibility, while the ice created slippery conditions.

Glasrud knew these symptoms were signaling another, less visible, problem: Energy was being wasted. "It's hard to put a dollar figure on it," he says, "but it's like leaving your refrigerator door open at home."

The Fourth Dimension

In July, Eric Rich, aftermarket sales representative at Pugleasa Co. (Arden Hills, Minn.), a manufacturer's representative for Frommelt Products Corp., a division of Rite-Hite Corp. (Milwaukee), approached

Glasrud with a product he thought would help. Rich had been working with Seneca Foods on other projects for some time and was familiar with the company's challenges. Like Glasrud, Rich had also noticed steam gathering at the loading docks.

Rich told Glasrud about Frommelt's new PitMaster Under-leveler seal, which had just been introduced in May. The PitMaster Under-leveler seal is the "first and only seal of its kind to close off the fourth side of the dock opening—beneath and around the dock leveler," according to Frommelt's product literature. The seal consists of a black-vinyl, compressible sealing curtain held in place by spring-loaded arms and flexible stays, the company says. These mechanisms keep the seal engaged against the leveler and pit sides, while a separate header curtain maintains the seal, even when the leveler is in an above-dock position, says Frommelt.

"Our industry has been good at sealing the sides and top of the trailer as it comes to the door," adds Mary Blaser, director of marketing at Frommelt. "However, the fourth side—where the trailer, dock leveler and vehicle restraint come together at the bottom—is a very difficult area to seal, and the industry has struggled with it."

Getting the White Out

According to Frommelt, the PitMaster seals air gaps where the leveler, trailer and dock seal or shelter meet, eliminating "white space" at the trailer level.

"Because of rapidly rising energy costs, we've seen demand for this kind of product," adds Blaser. However, energy savings is only one benefit this new type of seal can offer, she says. "By closing down the white space—not only beneath the dock leveler but also at the sides and corners—the PitMaster not only keeps the elements outside but also keeps dust and insects out of the facility."

Glasrud decided to test out the PitMaster on the three dock doors on the back loading dock. He had just installed new dock plates there, so it seemed like a natural place to try out a new seal.

Rich from Pugleasa helped Seneca install one PitMaster seal on each of the three doors, and Glasrud says he noticed a difference right away. "We saw moisture levels come down right away, and the floor is drier," says Glasrud. "While you'll

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never totally get rid of all of the condensation, the new seals cut it back considerably and made a big difference.”

Glasrud noticed other positives, too. Because the Seneca facility distributes food product, sanitation is critical, and crews clean the dock pits every other month. In addition, facility operations are audited annually by AIB International (American Institute of Baking, Manhattan, Kan.). Although AIB was originally founded by wholesale and retail baking companies in 1919, today, the organization provides inspection services, audits and educational services to many different food processing and distribution companies, including Seneca Foods.

“AIB inspectors were impressed with the new seals,” says Glasrud. “They had dinged us in the past for dirt and debris in the dock pits.”

“The AIB inspectors look for that ‘white space’ at the dock,” says Rich. “If you can see white space, then bugs or rodents can squeeze in. The PitMaster seals off all light completely, so that things can’t get into the pit.”

The dock doors equipped with the PitMaster seals also required much less time for the sanitation crews to clean, since most of the dust and debris were kept out of the pit, Glasrud explains. Pleased with the sanitation and safety benefits, Glasrud plans to install PitMaster seals on the other three dock doors in the facility.

Looking at the Numbers

Though sanitation and safety were Seneca’s biggest concerns, Glasrud is sure the new seals contributed to energy savings, as well, though he didn’t calculate exact figures.

However, Frommelt’s Blaser contends that the PitMaster seals can offer a facility an average energy savings of \$200 to \$900 per dock, per year, depending on geographic region.

As a freezer warehouse, the Seneca facility had to keep warm air out, but the PitMaster can benefit facilities with the opposite goal. It’s designed to keep the outside out and the inside in.

At dock areas equipped with traditional seals, heating or cooling losses can still occur, according to Frommelt, for two main reasons—air escapes through open spaces around the leveler, and heat is transferred through the leveler itself.

“Other seal products only seal off air from

blowing into the dock,” Rich says. “The PitMaster insulates the pit, creating a pocket of dead air in the leveler pit, which acts as an insulator that reduces heat transfer through the steel leveler deck.”

To back its claims with real numbers, Frommelt conducts detailed energy-savings analyses for prospective customers. According to one analysis, a company in Milwaukee heated by natural gas was losing \$7,267 per dock position annually by heat escaping through docks with no seals or shelters. With standard dock seals insulating three sides of the opening, heating losses were expected to drop to \$959 per year, per dock. If the dock positions were equipped with the PitMaster Under-leveler seal, heating losses were expected to drop to \$155 per dock. According to this analysis, PitMaster seals would save \$804 more than standard dock seals.

Frommelt conducted a similar analysis for a freezer warehouse in Houston. That analysis showed cooling losses of \$973 per dock annually with a standard seal, but only \$245 per dock, per year, with the PitMaster seal. That’s a potential energy savings of \$728 per year, per dock.

“This is low-hanging fruit,” says Blaser. “We can deliver a one- to two-year payback in almost every case for companies looking for energy savings.”

MHM



The PitMaster Under-leveler seal is designed to stay in place against the leveler and pit sides during trailer loading and unloading.

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Save Energy at the Loading Dock

The loss of heating or cooling energy through relatively small open air gaps at the loading dock can cost up to \$2000 per dock position per year. Frommelt® PitMaster™ and GapMaster™ products can prevent these losses, delivering a one- to two-year payback in most situations.



Exposed trailer door hinge gaps amount to 2.5 ft² of open space through which heating or cooling energy escapes.



Sealing trailer door hinge gaps with GapMaster hooks prevents energy loss, saving \$200 - \$1000 per year at each dock position.



Air gaps at the corners of dock levelers are the source of significant heating and cooling energy loss at many docks.



PitMaster Lip Corner Seals effectively fill these gaps thereby preventing energy loss.

Request a free loading dock energy loss audit by contacting your Rite-Hite Representative or visiting us at www.pitmasterseal.com



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