

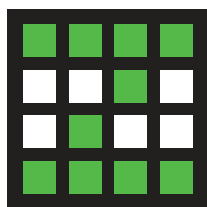
Case Study

NPS Improves Employee Comfort, Saves Energy with ZONEWORKS™ Insulated Curtain Walls



Custom-designed Zoneworks insulated curtain walls enclose the open dock, dramatically improving employee comfort and significantly reducing energy costs in the dock area

When looking to fully enclose an expansive, interior shipping/receiving area at its production facility in Green Bay, Wis., National Packaging Services (NPS) Corporation settled on the best available option: Zoneworks™ insulated curtain walls. With the curtain walls in place, NPS employees work in comfort year round while the company reaps significant energy savings.



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Interior dock design falls short

NPS's production facility is well suited for the purpose of manufacturing and distributing a host of products. Yet NPS decision-makers always knew the shipping/receiving area would need an upgrade.

The interior loading dock area encompasses a total of 3,600 square feet. Semi-trailer trucks enter it via four large, overhead industrial doors. Once inside the facility, trucks back up to a raised dock platform for loading and unloading around the clock at four dock stations. The building is designed so that the overhead doors can be closed after the trucks pull in to protect employees from the elements. The design is also intended to conserve heated air during winter and keep humidity and hot air out during summer.

Unfortunately, for various reasons, the overhead doors often need to remain open for extended periods of time, which creates a number of problems for NPS. During cold Wisconsin winters, the open doors allow warm air to escape and cold air to enter the interior dock. Strong winds and winter storms worsen the problem, making for an uncomfortable working environment. During the summer months, cooler air escapes and warm, humid air enters the facility to create an equally

uncomfortable situation. Whether it's summer or winter, energy loss was also a major concern given the round-the-clock operation. Additionally, the open doors create a vacuum effect that brings truck exhaust fumes into the operation from time to time.

Insulated curtain walls offer viable solutions

NPS decided enough was enough and set out to address the issue, but the company soon found its options were limited. Designing and installing permanent walls was cost-prohibitive. An "air curtain" system was also considered, but NPS determined it wouldn't work based on an unattractive energy requirement. Decision-makers were also uncertain as to whether the air curtain system would effectively address the problem.



The open interior dock area before Zoneworks wall were installed. Large overhead dock doors allowed cold air into the facility making employees uncomfortable and increasing energy costs to heat this area.

As part of its research into solutions, NPS consulted Dan Kirk at Arbon Equipment, the local Rite-Hite Representative, who had access to Rite-Hite's new Zoneworks products, a specialized line of large, flexible industrial barriers for a wide variety of environmental control and temperature separation needs. His recommendation: installation of an adaptable and technically advanced Zoneworks insulated curtain wall system to partition off the loading dock area from tempera-

ture-controlled operations – and maintain environmental separation whether overhead doors are opened or closed.

After weighing the pros and cons of the system and comparing it with other potential solutions, NPS determined the Zoneworks installation would best meet the operation's needs and deliver the highest value for the investment.

Zoneworks system made to order

NPS moved forward with the Zoneworks system in the Fall of 2007. As a starting point, Zoneworks application engineers worked together with NPS and Arbon to design a custom configuration that includes four openings at the dock platform to facilitate trailer loading and unloading at each dock station.

The three-sided system stretches 60 feet across the dock platform. From there, the curtain walls extend another 60 feet (18 meters) at a 90-degree angle from the dock platform along both sides of the dock to the overhead doors. At the heart of the system are Zoneworks TZ15 insulated curtain walls, which provide temperature separation of up to 15°F (8°C). The lightweight curtain is constructed of highly durable, fire-retardant Vinyl@ fabric, which wraps around flexible insulating material. The fire-retardant fabric meets NFPA-701 and CFM flame resistance standards. Interior batting is also FMV SS-302 certified and is anti-microbial.



Using a variety of insulative materials, TZ curtain walls can be constructed to provide up to 40°F (22°C) of temperature separation.

Each curtain contains a series of five-foot-wide panels that provide sufficient tension and prevent billowing caused by wind gusts. The paneled system also offers flexibility for future reconfiguration. Supporting the curtain is a lightweight



Custom designed Zoneworks Insulated dock enclosures save energy and increase employee safety, comfort and productivity.

steel framework anchored to the facility's ceiling and floor. At the ceiling, the curtains are attached to the framework and/or existing ceiling joists. Each curtain panel is firmly secured to the framework via metal plates located at the corner of each panel. The curtain panels overlap each other and attach with Velcro to create a continuous partition.

The framework also includes an opening at each dock position, which allows Zoneworks SCH Sliding Curtains to serve as interior loading dock doors. To open and close the curtains, NPS employees simply slide the curtain along a track and trolley system built into the top of the doorframe. The bi-parting curtains are also anchored to the dock surface with sturdy drop pins that easily slide in and out of position. Additionally, the frame supports foam compression dock seals mounted on the trailer side of each dock position. The dock seals provide additional environmental control and energy savings when trailers are parked at the dock.

Immediate and long-term results

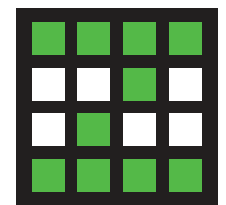
The Zoneworks system was completed in early winter of 2008 – and just in time for one of the most severe Wisconsin winters on record. According to NPS, the system proved to be a wise choice from the get-go.

On the first cold winter day after the Zoneworks system was installed, weather wasn't a problem as temperatures remained comfortable on the dock platform and in the rest of the warehouse

during a full day of trailer loading and unloading. The Zoneworks system also kept cold air outside – and warm air inside – throughout the winter of 2007-2008, despite subzero conditions and numerous snowstorms.

NPS company leaders say it's clear the Zoneworks system contributed to significant energy savings throughout the severe 2008 winter and cold spring. It also says the occasional problems with truck fumes have been eliminated.

NPS reports that the Zoneworks insulated curtain wall system has already proven its worth time and again in less than a year. Looking back, company officials say the system was clearly the best option for turning a problematic loading dock into a comfortable and productive working environment that contributes to the critical goal of saving energy.



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