

A Greener Supply Chain Starts at the Dock

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More and more companies are becoming aware of the need for a greener supply chain. A recent Material Handling Institute of America survey of material handling and logistics management found that 79 percent of facilities have instituted or are planning to institute sustainability goals for their operations. If a company isn't practicing sustainability yet, chances are good that someone who is part of their supply chain will either ask or demand that they do.

For any supply chain, the natural place to start is at the loading dock. Implicit in the sustainability mission is the wise use of HVAC energy and temperature control. The challenge at the dock lies with the dozens of 8- by 10-foot doorways along the dock wall, facilitating the loss of a large volume of conditioned air. The avenues for escape through the dock doorway are equivalent to a 6- by 6-foot hole in the wall. This is where management should pay attention.

JohnsonDiversey in Sturtevant, Wisconsin, is doing just that. Their recently built 550,000-square-foot facility has earned a LEED Gold certification for new construction and is working on another LEED Gold certification for existing buildings. They are also urging their contractors to practice sustainability, and working to sell greener products to their building maintenance customers throughout the world.

The JohnsonDiversey management team has evaluated all areas of their operation

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to discover ways to make it more sustainable, including how their employees travel to work. As for their loading docks? According to JohnsonDiversey regional warehouse operations manager Bruce Maple, “In setting up our dock, we took a lot of factors into consideration.”

Designing the dock to protect against energy loss and facilitate efficient truck trailer access involves thinking beyond the dock wall and employing a multi-layer strategy. Here is how equipment can be set up in layers to hold the line against energy loss for a greener loading dock.

Layer I — The Dock Door. Even though the door is closed, the building envelope may not truly be sealed. On busy docks, forklifts moving product often impact and damage doors and door tracks. A damaged door requires immediate attention; a partially damaged door may still function while failing to stop energy loss. Even a slight bump can cause the door to be misaligned and the resulting gap — however slight — can lead to hundreds of dollars of lost energy annually. Many managers are actually aware of the problem, but believe that the standard dock door design is all that is available.

Impactable dock doors are built to stand up to both the occasional bump and the most severe collision. Plant Manager Randy Williams at the Fieldale poultry plant in Gainesville, Georgia, moves tons of chicken every week — chicken that must be kept below 55°F to protect product quality. The impactable doors replaced what he refers to as “beer-can style doors,” ensuring product safety while preventing costly energy loss.

Rather than becoming damaged from the force of a major impact, the door panels release and can be easily set back in place. Fully impactable models have the seal attached to the door panel rather than the doorframe. The door and seal can roll up and be out of harm’s way, maintaining a consistent seal.

Layer II — The Dock Floor. Standard pit-mounted dock levelers provide safe trailer access for forklifts, but the pit cut into the concrete dock floor creates passageways for air infiltration. This presents a challenge in sealing the dock, since the loading dock, even with a closed door, is not properly sealed off.

As an alternative to pit-style dock levelers, vertical storing powered levelers and modular dock bridges store upright when not in use. This design allows the dock door to close tightly against the concrete floor to seal in the energy and lock out the elements. These levelers and dock bridges provide the added benefit of a full perimeter seal, and act as a steel barrier when stored to protect overhead doors from forklift assaults.

Stryker Communications in Flower Mound, Texas sees dock bridges as an important part of their human resource program for worker safety. But this equipment also enables this medical equipment manufacturer to tightly close their dock doors, preventing energy loss during hot Texas summers.

For facilities that use standard pit-style levers, the concrete pit in which these levers

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are mounted creates small gaps between the edge of the dock leveler and the pit wall, exposing the facility to interior–exterior airflow exchange. An infrared photo will reveal the extent of the leakage. There is a solution for this energy loss, however. Both new and existing pit-style dock levelers can be outfitted with an advanced weather-seal system comprising a durable combination of open-cell foam and heavy-duty vinyl that effectively fills the gaps around the sides and rear of the dock leveler and provides a superior seal around the perimeter.

Layer III — Between the Wall and the Trailer. Even when a forklift is working as fast as it can to load or unload a trailer, there is a period of time when the door is fully open and the dock is potentially exposed to outside air for hours at a time. Dock seals and shelters are critically important components in containing conditioned air in the dock areas. As with damaged dock doors, a poorly specified seal or shelter also permits considerable infiltration.

Dock seals have fabric-covered foam pads that compress when the trailer backs into them, providing a tight seal around the sides of the trailer and closing the gaps between the trailer’s door hinges. Dock shelters consist of fabric attached to side/head frames to create a canopy around the full perimeter of the trailer, allowing full, unimpeded access to the interior of the trailer.

Galvanized steel backing offers many advantages over wood backing that is used on some models of dock seals and shelters. Wood backing has a solid mass (1-1/2 inches thick) that does not yield when the seal is compressed. This often results in damage to the building. With steel backing, the solid mass is replaced with compressible foam on a steel frame. Steel backing also offers superior durability because it does not rot, split, crack, or warp. It uses plated screws with load-spreading washers in the steel to provide a stronger, more durable hold on the fabric.

Many docks use rubber wheel chocks in an attempt to hold trailers in place during loading and unloading, but rubber wheel chocks are no match for the forces exerted by forklifts driving in and out of trailers. This force can gradually cause a trailer to “walk” away from the dock, forming a doorway gap. A powered vehicle restraint ensures that the trailer is held snugly to the dock, with the back end of the trailer fully enveloped by the dock seal.

Tying It All Together — Master Control Panels. All of this equipment plays an energy-efficient role, but if the equipment is not deployed correctly, the dock can be left exposed to the outside. Master control panels are available to interlock these functions, ensuring that the dock door is not opened until the truck trailer is parked at the dock and secured by the restraint. The restraint will not release the trailer until the door is fully closed.

In addition to master control panels, recently-developed “dock management” software is now available to monitor loading dock equipment. The software notifies the user when the door is closed, and provides real-time data as to how long a truck has been at a dock position, creating the opportunity for a more efficient warehouse and loading dock.

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Shining a light on a greener dock. Some dock managers feel that any kind of lighting can do the job. For the green DC, LED dock lights are the only answer. LED lights provide thousands of hours of illumination and save considerable maintenance time and money spent on replacing bulbs.

Because dock activity can be rough on lights, light housings should be designed for forklift impact. Units with acrylic covers offer protection for high-traffic docks and prevent bacteria from forming in food and packaging operations.

Properly operating dock equipment also facilitates a more efficient supply chain. Major printing company Quad Graphics is significantly reducing their trucking miles, but to effectively accomplish this mission they use a strategic arrangement of their pallet loads within their Menomonee Falls, WI distribution center. They attribute the reliability of their docks to making this arrangement work.

Along with the array of equipment necessary to enable safe trailer access for forklifts, a carefully configured dock will cut the costs of energy loss. Prior to the investment, ask your dock equipment supplier to provide an energy audit to identify where losses are taking place and how much that escaping energy is costing you. Quite often the potential savings of hundreds or even thousands of dollars will be eye opening.

For more information, please visit www.4frontes.com [1].

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