Skechers tones up its

Paul Galliher, senior vice president of global distribution, stands in front of packing chutes serviced by a cross-belt unit sorter.

distribution center

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AS/RS and cross-belt sortation are speeding cartons through Skechers' new 1.8-million-square-foot DC and setting the stage for growth.

By Bob Trebilcock, Executive Editor

Skechers USA, the No. 2 footwear company, is known for its Shape-ups line of fitness shoes that are designed to "change your life by changing the way you walk." The idea is that a good design can make us more efficient and effective in the things we do every day.

Skechers took a similar approach in the design of its new 1.82-million-square-foot, $225 million distribution center in Rancho Belago, an inland community about 80 miles west of the port in Long Beach, Calif., where Skechers imports all of its footwear and athletic gear.

The DC consists of three distinct areas of work, each measuring about 600,000 square feet. Two areas are devoted to receiving with about 400,000 square feet of reserve storage in each; the space in the middle is dedicated to order fulfillment and shipping.

The new facility shapes up distribution processes by consolidating activities that were once spread across 1.7 million square feet and five leased facilities in southern California into one highly automated DC to handle all of the footwear company's North American distribution.

"Each of those buildings had different equipment and each handled a different piece of the order fulfillment process," says Paul Galliher, senior vice president of global distribution. "We spent a lot of money due to the additional handling required to move product between buildings for the order fulfillment processes."

The new facility is not only one of the largest distribution centers in California, it was designed to be one of the most efficient. Although the facility is just now going live, Skechers worked with a systems integrator (Wynright, wynright.com) to design an automated materials handling system that not only minimizes the number of times a pair of shoes is handled between receiving and shipping, but is capable of managing an inventory of 70,000 stock keeping units (SKUs) and processing approximately 17,000 pairs of shoes per hour. That's more than double the 7,000 pairs per hour handled in its old buildings.

The number of times a product is touched between receiving and shipping has been reduced by at least 50%. Similarly, the new facility requires about 300 employees for average volumes and an estimated 500 during peak periods. That is less than half of the 1,200 associates used during peak periods when Skechers was operating five DCs.

At the heart of the system are two mini-load automated storage and retrieval systems (AS/RS; Daifuku Webb, daifuku-america.com):

- One is a 12-aisle system with 58,000 square feet of storage space and nearly 106,000 storage positions. This system was implemented to store partially filled master cartons, known as loose picks in the Skechers facility.

Skechers' new facility features two mini-load AS/RS systems (left) and a narrow-belt shipping sorter (right).

• The other is a 44-aisle system with 150,000 square feet of space and more than 257,000 storage positions. This system holds packed orders until they are ready to ship.

Both mini-load AS/RS units are able to accommodate a random range of carton and box sizes, from 34 x 24 inches to 10 x 10 inches. Both also use motor driven roller conveyor and transfer stations to sort cartons rather than conventional sortation technology.

In addition to the two mini-loads, Skechers installed a cross-belt sortation system to feed the facility's packing stations; energy-saving motor driven roller conveyor; a narrow-belt shipping sorter servicing 26 shipping door accumulation lanes; an estimated 800,000 square feet of very narrow aisle reserve storage area; and a 135,000-square-foot mezzanine that was the winner of the 2011 design award from the Steel Joist Institute. The mezzanine is used for value-added services, print and apply, and taping prior to shipping.

The facility allows Skechers to meet two important strategic goals: It consolidates operations, and it sets the stage for continued growth.

"This is the first time since 1995 that we have had all of our North American distribution under one roof, and back then we were a much smaller company," Galliher says. "We also have options on the adjacent property. That will allow us to expand in the same area if we outgrow this facility."

And while it is one of the largest distribution centers in California and the largest LEED-certified building in North America, 1.82 million square feet under-represents just how big the facility really is. "We have 45-foot ceilings and use all very narrow aisle racking for reserve storage in addition to the two AS/RS," says Galliher. "If this were a traditional DC with 30-foot ceilings and conventional pallet rack, we would need significantly more space."

Running at full speed

Skechers was founded in California in 1992 to import Doc Martens into the United States. Today, the company is now the No. 2 footwear company in North America with just more than $2 billion in sales in 2010. The company focuses on designing and marketing its line of shoes while working with contractors in China and other emerging markets to manufacture its lines.

The Skechers story is about more than just sales growth. Over the past 19 years, Skechers has broadened its product line to encompass nearly all of the categories of footwear, from athletic shoes to casual shoes to sandals to kids shoes—a total of some 70,000 SKUs.

The company is also a multi-channel marketer. In addition to 300 retail and outlet stores around the world, Skechers sells to wholesalers, to other retailers and directly to consumers. "One of the things that makes us unique is that we don't have a direct competitor," says Galliher. "We compete with every other shoe company and on a different level with each."

Growth across those different lines and channels was a key factor in the decision to build a new DC. Between 1997 and 2007, Skechers added DCs to its network like adding charms to a bracelet. "We were growing quickly and gobbling up additional space to get product out the door," Galliher says.

For instance, after outgrowing its original DC in Compton, the company took over a facility when LA Gear went out of business, then took over a second nearby building with a tilt tray sorter when it outgrew the first building. Other

In the receiving department, cartons are palletized for putaway in a very narrow aisle reserve storage area.

facilities were added on an as-needed basis. Those buildings varied in ceiling height and in equipment, with some buildings sporting conventional aisle storage, some with narrow aisle storage and some with very narrow aisle storage.

What's more, product was received from the ports in one building, picked and packed in another and potentially picked up in a third. "We were constantly shipping product from one building to the next until it got to the right place," Galliher explains. "We were our best transportation customer."

Growth-driven design

Skechers began the design process for the new facility just ahead of the financial meltdown, signing a lease for the building in 2007. After an extended permitting process, Skechers broke ground in June of 2010.

According to Galliher, there were several key goals that resulted in the final design of the system.

One roof: Yes, Skechers wanted to consolidate a hodge-podge of operations under one roof, but it also wanted to maintain one central point for North American distribution rather than develop a distribution network. "Our belief is that when you have regional DCs, you end up with inventory on the East Coast that you need on the West Coast and vice versa," Galliher says. "There are challenges to positioning the right inventory in the right places."

Just as important, he adds, Skechers still operates a close-knit operation. "We're a public corporation, but we still think of our associates as family," Galliher says. "That would have been lost if we developed a regional model." Skechers does work with two 3PLs to distribute to Canada.

Keep it scalable: The buildings and the automation systems were designed so that Skechers could put in a piece of equipment and generate savings now and still add on to those systems at a later point as the business grows. For instance, both AS/RS units are expandable. Moreover, Skechers purchased an adjacent lot big enough for another facility should it outgrow this one.

Keep it green: To earn LEED certification, the facility features solar panels that generate electricity; a reflective roof and a natural ventilation system that relies on prevailing winds maintain a comfortable working environment even in desert heat; native plants and plumbing fixtures that conserve water; and plug-in stations for electric vehicles.

Rationalize labor: Like most retailers and manufacturers of consumer products, Skechers distribution processes have to accommodate seasonal swings in demand and labor. "During our peak season, we would have as many as 1,200 employees, most of whom were temporary employees," Galliher says. "Training and managing that many people for seasonal spikes is always a challenge."

What's more, bringing on seasonal labor in conventional systems has an impact on throughput and order accuracy. One of the goals then was to develop a system that could handle the day-to-day order activity with a core group of associates—in this case about 300—and accommodate seasonal spikes with a minimum amount of temporary help.

Automate with a purpose

Automation, including the two mini-load AS/RS units and the cross-belt sorter, were central to controlling labor in the new facility.

For instance, packing and shipping were two areas that required a large labor component under the old model. Shoes are shipped to Skechers in master packs of six pairs of adult shoes or 12 pairs of children's shoes in a solid color. Most customers, however, order an assortment of styles, sizes and colors. To fill those orders required breaking down the prepacks, picking and re-packing the number of "loose pairs" required for an order, and returning the partially depleted carton to storage. All that processing required a lot of hands and touches.

Similarly, Skechers often packed orders and staged them on the shipping dock for customers who did their own pick ups. The process not only required labor, it consumed valuable real estate in the shipping area.

The mini-loads addressed both of those issues. One system is designated to store and deliver partially depleted loose pick cartons to an induction platform for the cross-belt sorter. "It took a lot of people to pull those pairs from the shelves and repack them," says Galliher. "Now, the mini-load delivers a carton to the induction station, an associate picks the pairs needed for an

order, and the carton is automatically returned to storage."

Similarly, items for a pack-and-hold order are prepared for the customer and then automatically delivered to the other mini-load, where they are held in very dense storage until a customer is ready to pick them up.

While this is a highly automated facility, it was automated with a purpose. The idea was to get the benefit from automation without being bound by automation. "We were very sensitive to cost," Galliher says. "Every time we added a component, we weighed what we were trying to achieve against the return on investment to decide where we could get value from automation compared to a conventional solution."

For example, the mini-load in the loose pick area is designed to handle the facility's normal capacity. A conventional process was designed for the spikes in demand that occur on one or two days at the end of each quarter. At those times, the system diverts some of the loose-pick cartons to a conventional palletizing station early in the shift. The pallets are then staged in lanes until the items are required at the induction area for an order wave. Yes, it's manual, but it was a more cost-effective solution than sizing the automation to handle volumes that might only occur four to eight days a year.

Skechers also relies on conventional processes in the value-added services area located on the mezzanine. "We have customers who do pre-orders and give us their packaging and labeling requirements," says Galliher. "Those used to be processed in a different building from our other orders. Now, we do everything out of one facility. That means that the look of the packaging, the paperwork and the product will be the same."

The new facility has only recently gone live, so hard metrics on the performance of the new facility are not yet available. But, Skechers is optimistic. "We designed the facility to deliver a five-year ROI," says Galliher. "If we do that, we will have achieved what we set out to do." □

Optimized case handling

Skechers' new facility brings together automated storage, cross-belt sortation and conveyor to handle multi-channel order fulfillment from one system.

By Bob Trebilcock, Executive Editor

Through the consolidation of five facilities into one, large and highly automated facility, Skechers is able to fill orders for its own retail stores, other retail and wholesale customers as well as direct-to-consumer Web orders.

Receiving: Located about 80 miles from Long Beach, Calif., the facility

Skechers USA

Rancho Belago, Calif.

SIZE: 1.82 million square feet

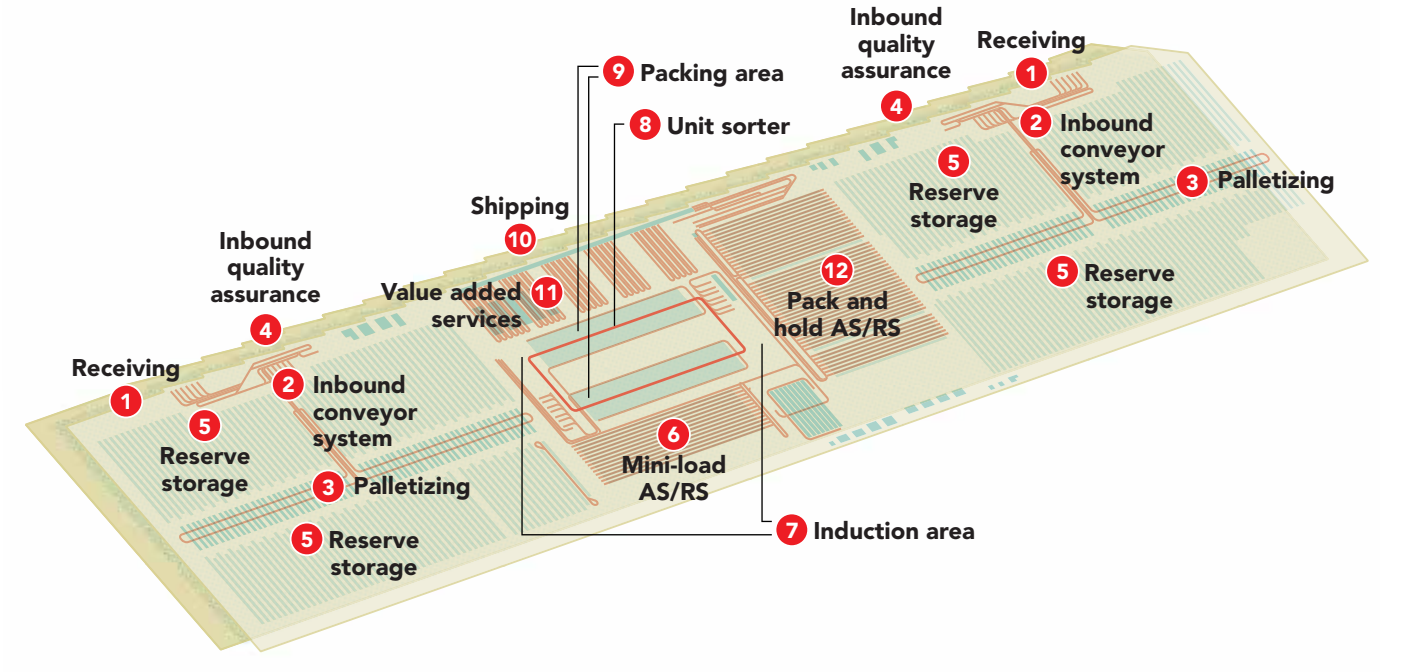
PRODUCTS HANDLED: footwear

STOCK KEEPING UNITS: 70,000

THROUGHPUT: 17,000 pairs of shoes per hour through pick and pack operations

EMPLOYEES: 300 in operations

SHIFTS/DAYS: 2 shifts/5 days



receives an advanced ship notification (ASN) detailing the contents of a shipment prior to the arrival of a container at the receiving dock (1). The contents of the floor-loaded containers are put on a belt conveyor (2) and a license plate label on the carton is read by a stationary scanner.

Inbound product can be handled in several ways. Some items will be automatically conveyed to a palletizing area (3) where the cartons are sorted by style, color and size. Preprinted pallet labels are applied to a pallet. An associate scans the pallet label and the product label to associate the products on the pallet with that license plate in the warehouse management system (WMS). Other items will go through a preliminary step before they are sent to the palletizing area. For instance, items that are new to the facility are routed first to a cubing and weighing station where information about the product is gathered for storage and shipping purposes. Other products may be routed first to an inbound quality assurance area (4). In either case, after that preliminary process is completed, the cartons will be conveyed to the palletizing area. Pallets are then staged for pick up by a lift truck operator.

Putaway: Once a pallet is staged for pick up, a task is sent to a lift truck operator. The WMS uses task interleaving to optimize processes, so a lift truck driver assigned to the task may also be doing replenishment activities. Pallets are delivered to a drop off location in the very narrow aisle rack reserve storage area (5). Turret truck operators are typically assigned to one, two or three aisles. The operator scans the pallet and is directed to a putaway location. Once there, he scans a location bar code to confirm the putaway and is then assigned another task by the WMS.

Picking: Skechers fills orders from several different retail channels. To the automated system, however, the process is the same. Depending on the order, product can be pulled from reserve storage (5) or from the mini-load AS/RS used to store loose picks (6). A loose pick is a partially full open carton that has already been used in part to fill other orders.

- **Mini-load picks:** Loose pick cartons are conveyed from the mini-load to an induction station (7) for the cross-belt sortation system (8). The license plate bar code label on the carton is scanned by a stationary scanner in route. The SKUs and the number of shoes to be pulled from that master carton are displayed on a monitor. Shoe boxes are placed on an induction conveyor, where they enter the sortation system. The shoes are then sorted to a packing chute and delivered to the packing area (9). If the order doesn't require all of the contents of the master carton, it will be conveyed back to the mini-load (6) for storage.
- **Storage area picks:** Items that can't be filled from the mini-load are retrieved from the reserve storage (5) area. The WMS assigns the task to an order picker who will pick the cartons to a pallet. Once all of the cartons for that task have been picked, the pallet is delivered to a case induction area (7) adjacent to the pallet building area. Once the pallet is scanned, the cartons are placed on an induction conveyor and are sorted to a packing chute area (9).

Packing and shipping: Pairs coming down a packing chute into the packing area (9) have already been cubed by the WMS, which determines what size shipping case to use for an order. That information is sent to the handheld scanner used by packers. The right size carton is removed from an overhead conveyor. Once the contents for that order are loaded into the shipping container, the associate scans a license plate bar code label on the container, the bar code label on the chute and then seals the container with tape. The outbound shipping label is automatically applied at a print-and-apply station. At that point, the carton will be handled in one of three ways.

- **Direct to shipping:** Cartons that are ready to ship as is are conveyed directly to the shipping area (10) where they will be palletized and stretch-wrapped for Skechers stores or wholesale customers that order by the pallet. Everything else will be floor-loaded in an outbound trailer. The order is now ready to ship.
- **Value-added services:** Other cartons will be sent to a value-added services area (11) on the mezzanine level where special labeling will be applied. From the value-added services area, the cartons will be conveyed to the shipping area (10) for palletizing or floor loading into a trailer.
- **Buffer storage in the mini-load AS/RS:** Remaining cartons will be stored temporarily in the facility's second mini-load AS/RS, known as a pack and hold AS/RS (12) which provides temporary buffer storage for orders that are ready to ship before the customer is ready to pick them up. Once those orders have been cleared for pickup and delivery, they are conveyed to the shipping area (10) and loaded onto a trailer. □

System suppliers

SYSTEMS INTEGRATION: Wynright, wynright.com

MINI-LOAD AUTOMATED STORAGE AND RETRIEVAL SYSTEMS: Daifuku Webb, daifukuamerica.com

CONVEYOR SYSTEM: Automotion, automotionconveyors.com

CROSS-BELT UNIT SORTATION SYSTEM: Beumer Group, beumer.com/en

NARROW BELT SHIPPING SORTER: TGW Systems, tgw-group.com

WMS: Manhattan Associates, manh.com

LIFT TRUCKS: Raymond, raymondcorp.com

BAR CODE SCANNING: Psion, psion.com/us

PALLET RACK: Hannibal Industries, e-hii.com

CUBING AND WEIGHING: Cubiscan, cubiscan.com