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IKEA's new style: automation

The home furnishing giant reduced the turnaround to stores from 72 hours to 24 hours while taking nearly 700 miles out of the process.

By Bob Trebilcock, Editor at Large – Modern Materials Handling, 2/1/2008

As retail operations expand in the southeastern United States, IKEA's Georgia facility is designed around a 13-crane automated storage and retrieval system (AS/RS) that minimizes the labor required for putaway and picking, and a 100-foot tall racking system that optimizes space and provides room for growth.

The majority of the product is received via ocean freight through the port of Savannah, located four miles from the facility. IKEA receives an advanced shipment notification (ASN) once product is on the water and is notified again when containers are available for pick up. The goal is to receive and unload a container within 48 hours of arrival at the port.

When containers arrive at the DC, they are processed at the receiving docks according to the requirement for the product and where it's going to be stored in the facility. Product arrives in the containers on slipsheets or paper shipping pallets. Those are unloaded and strapped for safety purposes onto one of three standard-sized permanent pallets used for storage in the facility.

In the receiving area, an operator verifies that the supplier, product and quantity received are accurate. Once the information is verified, a pallet label is printed and applied. The pallet is now received in the warehouse management system (WMS) and queued for putaway.

A lift truck driver scans the ID label. If a pallet is going to be crossdocked, the driver is directed to a floor storage area near a dock door. The driver deposits the pallet and scans a bar code embedded in the floor. The pallet is now released into that area.

If the pallet is stored in the conventional rack area, the driver scans the rack location to confirm the putaway. Meanwhile, product stored in the AS/RS is delivered to a conveyor infeed station. When the driver scans the bar code at the station, responsibility for the pallet is taken over by the AS/RS, which manages the pallet putaway.

In all three cases, the WMS uses task interleaving, assigning the driver another task from that area to minimize empty travel time. For example, a driver putting away a pallet to the conventional rack area will pick up a pallet for the shipping area.

Storing and picking

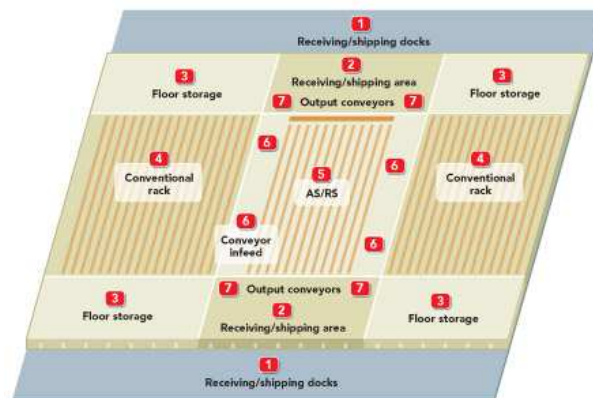
The vast majority of the outbound orders involve full pallet picks. Stores serviced by the DC order the inventory they need. IKEA's planners create order batches based on store pick up times, which vary according to the weight and volume of the orders and the trip distance to a store.

To pick orders from the conventional rack storage area, a driver is directed to a storage location by the WMS. After picking the pallet, the driver delivers it to a floor storage area, where he scans the pallet ID and a bar code embedded in the floor. The pallet is now available for outbound shipment.

Meanwhile, each crane in the AS/RS is simultaneously storing and picking pallets. Outbound pallets are delivered to one of two output conveyors at each crane; each output station can hold four pallets. At the output conveyor, the driver scans a pallet ID and is directed to a floor storage area at the dock.

The facility ships a limited number of mixed pallet orders. Those are picked from pallets stored on the floor in a special area designated for carton picking. As cartons are picked to a pallet, the lift truck driver prints and applies an order label. When the pallet is complete, it is delivered to a floor area near a dock.

To load a trailer, a lift truck driver scans a pallet in the floor area near a dock door and loads it in a trailer. Each time a pallet ID is scanned, it's removed from the list of pallets for that order until the trailer is full. At that point, a supervisor verifies that the order is complete and releases it in the system for delivery to a store.



IKEA Wholesale Inc.
Port Wentworth, Ga.
 SIZE: 750,000 square feet
 PRODUCTS: Home furnishings
 SKUs: 3,500
 THROUGHPUT: 600 pallets per hour at full capacity
 SHIFTS: 1 shift, 7 days
 EMPLOYEES: 140

System suppliers

- Automated Storage/Retrieval System: viastore, 616-656-8876, www.viastore.com
- Bar code scanning: Motorola, 866-416-8545, www.symbol.com
- Conventional pallet rack: UNARCO, 800-862-7261, www.unarcorack.com
- Conveyors: Binder & Company AG, 43-3112-800-0 (Austria), www.binder-co.at
- Fast-charging battery system: PosiCharge, 866-767-4242, www.posicharge.com

- **High bay pallet rack:** Frazier Industrial, 800-614-4162, www.frazier.com
- **Lift trucks:** Yale Materials Handling, 800-233-9253, www.yale.com
- **System integrator:** WEI West, 909-902-9880, www.weinet.com/WEI-West.asp
- **Warehouse management system:** Consafe Logistics, 44-1952-602752 (UK), www.consafelogistics.com

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