

DC Campus A58

Operational Description

Content

1	PRELIMINARY REMARKS	3
1.1	General	3
2	FUNCTIONAL AREAS	5
2.1	Receiving	5
2.1.1	Receiving for new items	5
2.1.2	Returns	5
2.2	Stow and picking of items	6
2.3	Automated storage and picking of items	7
2.4	Packing of items	7
2.5	Outbound	7
2.6	Offices	7

1 Preliminary Remarks

1.1 General

The development intends to setup a new e-commerce logistics center where diversified logistics tasks will be performed:

By picking, sorting and labeling sellable products are generated and sent to customers. Furthermore, packaging material and waste will be collected and recycled. It is planned to install receiving, returns sorting and packing capacities and work stations as well as two 5-story Picktowers, a pallet high bay rack and a pocket sorter with an integrated pocket buffer.

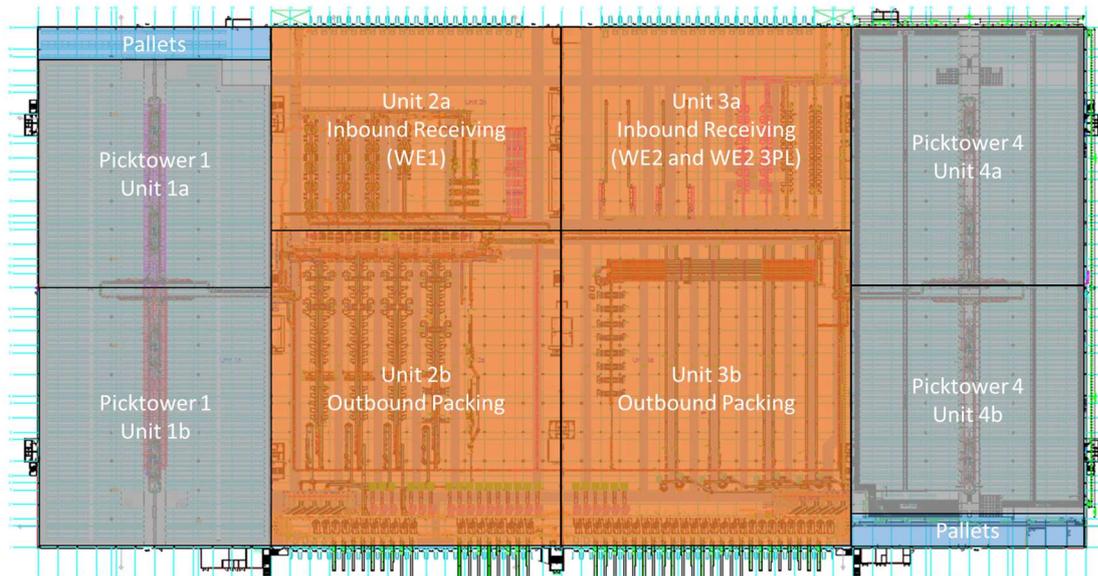
The following logistics operation should be fulfilled in particular:

- Receiving for new and return items
- Stow of items (esp. shoes, apparel, accessories) in shelves and a pocket sorter
- Manual or automated (future option) picking out of a multi-story Picktower
- Automated picking out of a pocket sorter
- Packing of items into shipping cartons
- Shipping of cartons by contracted KEP service providers

Another part of the object will be the trailer yard and circulation paths which will be used for the delivery and pick-up of goods by the trailers & swap trailers as well as for temporary parking of trailers and swap trailers. Furthermore, offices and social facilities for all employees will be built on site. Employees and visitors are allowed to use the parking lots on site.

The following picture shows schematically the layout of the intralogistics within the building.

Figure 1: Overview of logistics functions



Units 1 and 4 will be occupied by 5-story shelf areas (Picktower) whereas units 2 and 3 will be occupied as process areas. All units in the logistics center will be divided into the areas a & b. Area a in units 2 & 3 will be used for inbound operations, area b will be used for outbound operations. The location will be divided into 4 different units (1-4). Above the units 2 and 3 there will be a mezzanine, on which the pocket buffer will be located.

2 Functional areas

2.1 Receiving

In the receiving area three different types of receiving processes will be performed:

1. new items (usually consisting of palletized items from suppliers or intermediaries)
2. return items (items coming in cartons back from customers or pre-received items from a third-party-logistics provider (3PL))
3. Warehouse Mixed orders, consisting in the reallocation of certain items coming from another logistics centers to complete a customer order.

2.1.1 Receiving for new items

For the receiving of new items unloading buffer and work stations will be installed in unit 2. The unloading of the products will take place at unloading docks and the goods will be moved by fast-moving pallet jacks to the unloading buffer. The second step consist in moving the pallets by pallet jack to the receiving work stations. At the work stations the palletized items will be de-palletized and separated one by one and transported to the stow location into the 5-story-shelf area (Picktower).

2.1.2 Returns

Return items will be received via two different channels. On the one hand pre-received items by a 3PL will be put away directly whereas on the other hand return items from customers will be treated directly in the logistics center and then put away in the same way as the other concept.

Return items which have not been treated previously by a 3PL arrive as loose items in cartons on swap trailers. The cartons are unloaded via telescope conveyors and delivered to the returns work station in unit 3 via conveyor lines.

Already pre-received and palletized return items coming from the 3PL will be handled at the stations in unit 2. The incoming goods will be unloaded at approx. 10 unloading docks by fast-moving pallet jacks. Items which cannot be processed immediately will be placed in the inbound buffer behind the unloading docks. As soon as the items can be processed, the pallets will be taken to the processing work stations. At these stations the operators receive the pallet and place the items into totes.

Already pre-received and palletized return items coming from the 3PL will be handled at separate work stations). The incoming goods will be unloaded at unloading docks by fast-moving pallet jacks. Items which cannot be processed immediately will be placed in the inbound buffer behind the unloading docks. As soon as the items can be processed, the pallets will be taken to the returns work stations. At these stations the operators place each item into empty bags and the item will be guided via a bag conveyor technique (hanging garments) to bag buffers in units 2 and 3 on the mezzanine. As soon as the bags are filled, they will be forwarded to the bag buffers in units 2 and 3.

2.2 Stow and picking of items

In unit 1 and 4, Picktowers will be installed to stow the items and pick the customer orders. In these Picktowers shoes (in cartons), apparels (clothes in textile boxes), hanging garments and accessories will be stored into shelves.

Figure 2: Example levels Picktower



In case of the manual stow process the operator picks up two full totes from the buffer station and places them on a customized picking cart. In a second step the operator drives with his picking cart through the rack areas and stows the items in the racks. Each item will be allocated system-wise to a storage location.

In case of picking the operator is responsible for the compilation of certain items based on customer orders. The operator takes two empty totes, places them on his picking cart and drives through the racking area. He picks the items out of the indicated pick locations and places them into the pick totes. Once the picking trip is complete, the operator drives back to the buffer station and pushes the totes onto the conveyor technique, which conveys the totes to the packing area, where the items will be sorted, packed and shipped according to the customer order pattern.

As a future option the system as described above could be partially automated in Unit 4.

2.3 Automated storage and picking of items

In the units 2 & 3 mezzanines will be built.

On this mezzanine a bag buffer with a capacity of approx. 900.000 bags will be built.

In the described areas up to 900.000 return items will be stored. Furthermore, warehouse mixed order items will be buffered during the day, but will be consumed entirely by the end of the day.

Downstream the bag buffer a bag sorter will be setup. Its functions consist on the one hand, on the consolidation of items which have previously been picked out of the Picktower and the ones located in the bag buffer, on the other hand on the sorting of these items based on the customer order structure.

Items which have been picked manually will be repacked in unit 3b. In this unit the items out of each Picktower will be delivered to the repack station in totes and will then be re-packed into the bag. The full bag will be delivered to the bag sorter via the bag sorter conveyor. The entire process within the bag sorter is fully automated.

2.4 Packing of items

In this area the picked items will be packed into shipping cartons. Afterwards the cartons will be forwarded to the outbound area. Packing and shipping areas will be connected by belt conveyors in order to transport the shipping carton in the fastest possible manner. At each packing line two belt conveyors will be installed to convey the shipping cartons to the outbound area.

2.5 Outbound

In the outbound area the items leave the interior of the facility. The outbound operators execute operations such as: buffering, final inspections (comparison of physical cartons with the information on the shipping documents), loading of the trucks and elaboration of shipping documents). Overall 52 – 84 outbound docks will be installed. The shipping cartons will then be transported to different hubs of our 3PLs to be distributed to different routes to the customers. In order to sort the shipping cartons automatically to the different destinations a sorter will be installed in the outbound area. The sorter will be fed via infeed strings connecting the packing conveyor with the sorter. As soon as the shipping cartons have been assigned a destination the cartons will be drop via spiral chutes to a height of 550 mm and loaded into the trucks and swap trailers via telescope conveyors. The entire outbound sorter will be installed on a height of about 4.500 mm above the floor. Below the sorter there will be both forklift truck traffic as well as pedestrian crossings.

2.6 Offices

Offices are located on the first floor above the outbound areas (Units 2 & 3). The office area will be used to allocate the necessary administrative resources to conduct the daily operation. Besides the Management there will be employees from human resources and general administration.