



Distribution Center MANAGEMENT

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Managing people, materials and costs in the warehouse or DC

From the Golden Zone

Think you're out of space? Before you expand, consider a re-slot

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Inventory control supervisors often declare they are out of space in their facilities. At least 80 percent of the time, they are really out of slots, not space. In this case, a partial re-rack (or partial re-slot) of a facility is usually a viable way to make space for all items in the facility, and a better alternative to capital expenditures for building additions or new locations.

To determine if you're out of slots or out of space, you must calculate both your current capacity and your potential capacity. Often there is a significant difference.

Current warehouse capacity should be measured based on the number of slots available, whereas potential capacity should be determined based on the number of slots of the proper rack type that could be made available and actually fit within the physical constraints of the warehouse.

Determining the number of various rack types required to properly slot all items is called a profiling exercise. It is extremely important to do a careful profiling analysis, as warehouse capacity is defined based on the results.

Profiling matches item characteristics, such as dimensions, weight, and outbound movement,

to slots of various types and sizes, keeping a certain number of days of item demand in the slot while wasting the least amount of space. Slotting extends the exercise to select the exact location for an item in the pickline based on sequencing and/or grouping rules (e.g., movement sequence, density sequence, family group, or vendor group). Both profiling and slotting must be simultaneously addressed by slotting software to get optimal results.

Success in producing a high-density, space-saving pickline depends on the rack types chosen and their specific placement. Simple examples include:

- Placement of single-high pallet rack on one side of an aisle and two-high pallet rack on the other.
- Placement of case flow rack on one side of an aisle and static shelving on the other side.

When choosing rack types and their placement, one must consider item dimensions and movement characteristics. But be sure to keep it simple: Use 10 different rack types or fewer, if possible. You might use bulk three-deep locations, single-high pallet positions, two-high pallet positions, decked rack, case flow rack, and static

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shelving, providing enough variation to waste little space when assigning items to locations.

Over time, slots often become “customized” in order to handle certain unit loads — usually vendor pallet patterns — and bar heights for pallet positions lose their uniformity. This situation leaves little flexibility in the pickline to move items from one location to another as outbound demand for an item changes, making it even more difficult for the inventory control supervisor to adapt. Relative uniformity of rack types and bar heights provides a level of flexibility to move items from current to new locations using the same rack types. This flexibility is helpful in situations where the SKU mix, number of SKUs, or SKU movement value is dynamic. Therefore, evaluating bar heights on a periodic basis and defining a standard that both houses the correct amount of product and wastes the least amount of space is necessary.

Under these circumstances, a mechanism for properly assigning items to rack types and simultaneously sequencing items down a pickline is required. Unless the rack types are perfectly positioned, trade-offs will be necessary as part of this profiling/slotting effort.

So what variables can be traded off to best fit items to slots? The answer(s) are best given as examples.

- If an item needs to be sequenced in the pickline based on unit movement, for instance, then the goal is to select the proper rack type to hold the targeted number of days’ inventory, wasting the least amount of space, while simultaneously selecting the exact item location in the proper sequence relative

to other slotted items. If that rack type is not available in the proper sequence, then assigning multiple facings might work. Or perhaps slotting fewer days’ inventory in an available location is acceptable. These are trade-offs that can be modeled using sophisticated slotting and profiling tools.

- Perhaps you’re considering ergonomics, with a desire to ensure heavy items are not slotted above shoulder height (to reduce the chances of worker injury and product damage). Unless there is an opening available from which a selector can pick an item without reaching overhead, then a trade-off is required. One may place the item out of sequence, or choose the properly sequenced slot assignment, with an understanding that either less than the targeted number of days’ inventory will fit in the slot, or that the slot is oversized. Once again, today’s slotting software should handle these trade-offs.

- If product in the pickline is grouped (e.g., family grouped), then the choice of rack type for a particular item is limited to the range of rack where the group is located. But what if no rack type in that rack range is available to slot an item? Does one break the grouping rule, use a less efficient rack type, or multiple face an item? If the user of modern slotting software can define the rules and their relative importance, then the software can properly place the item under a scenario of competing goals and constraints.

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