



Distribution Center MANAGEMENT

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Managing people, materials and costs in the warehouse or DC

From the Golden Zone

Better planning equals better material handling methods

By H. Lee Hales

Distribution centers are essentially material handling facilities. To be sure, a DC's primary function is to assemble and ship orders, but material handling is mission critical. Nothing can happen without it. Therefore, it makes sense to plan your handling methods in a systematic way.

But when asked for a copy of a material handling plan, most DC managers give a puzzled response: It's not written down. We have what we have. It was planned a while back. It has just evolved.

DCs that are dependent upon conveyors and sortation systems typically have drawings and even simulation models for the system. And, if we saved the initial engineering work, we hopefully have a record of the other alternatives considered and an evaluation showing why we chose what we have. But what about moves made by trucks, carts, and people? Or facilities that are largely truck-based? Here, our plan may be little more than a rack or floor stripe layout, a list of our handling equipment, and a crewing spreadsheet.

Given the long-term cost and operational implications of our decisions, we ought to do better at planning, especially when we are opening new facilities or expanding, consolidating, or relocating and the door is open to change. Here we can benefit from a planning process that:

- Identifies potential methods for each class of material on each of its routes,
- Calculates the resources required — equipment and people — for each potential method, and
- Evaluates and selects the best methods based on costs and intangible considerations such as flexibility, maintainability, reliability, and operator acceptance.

By class of material, I mean groupings or classifications of items based on their similarities in size, weight, shape, risk of damage, special conditions (e.g., temperature), value, or other factors. By grouping items in this way, we define classes that we can handle by a common method. We also avoid oversights and alert ourselves early to differences, special cases, and exceptions that can be costly if we discover them later.

By handling method, I mean not only the equipment such as conveyors, reach trucks, and pallet jacks, but also the transport unit, including cartons, totes, and pallets, as well as the system of moves.

The last element refers to whether the move will be made directly from origin to destination, or indirectly via a shared device such as a conveyor or a tug and carts moving on a route that serves multiple origins and destinations. Indirect moves typical-

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ly make sense for smaller quantities moving on longer routes, especially in large DCs.

The following basic considerations drive the orderly setting of those handling methods, including the system of moves, equipment, and the transport unit:

- The physical characteristics and transportability of each material class,
- The physical nature of storage equipment that must be directly accessed by the handling equipment (e.g., types and configurations of racks and shelves),
- Inventory level or quantity of material to be stored (maximum and typical),
- Flow rate or intensity (peak and off-peak), with higher volumes favoring more complex and automatic equipment. (both peak and off-peak intensities need attention),
- Order-picking methods (e.g., by picker complete, by zone, by batch; picker-to-material or material-to-picker; floor level or elevated; pick to pallet, to tote, to shipping carton; and manual, mechanized, or automatic),
- Layout and move distances from origins to

destinations, matching travel-oriented equipment to long moves and handling-oriented to short.

Once we have a menu of compatible possibilities, our plan will compare capital and operating costs. In most cases, our final decision will rest on intangibles or soft factors such as: ease and speed of installation, amount of disruption, scalability, flexibility, responsiveness during peak conditions, maintainability, fit with operator skill, space constraints, and existing equipment.

This means that our planning process needs a final and formal evaluation step — one in which operating and technical people have a chance to rate and reach consensus on the performance of each alternative on each factor.

If we have done all these things and can put our hands on the documented results, then we can say, “We have a plan.” And when we do, chances are we’ll have the benefits of better handling methods.

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