

How to Lay Out a Warehouse or Distribution Center



Case Problem: Storage Methods Selection

Case Problem

Please read pages 1 & 2 of the case. Then answer the questions on page 3.

BKG, Inc. – Storage Methods Selection

BKG is acquiring a new product line from another company and must store its finished goods. The total product line consists of 430 items or stock keeping units (SKUs). The physical characteristics of these items are as follows:

Size: Palletized unit loads: 48” deep x 48” wide x 42” high
Weight: Average 1,800 lbs.; Maximum 2,400 lbs.
Stackability: 2 to 3 loads high

Stock rotation with first-in/first-out flow will be important. Total pallets on hand has averaged 800 for the past 2 years. This is one month’s supply. Peak inventory is about 25% above the average.

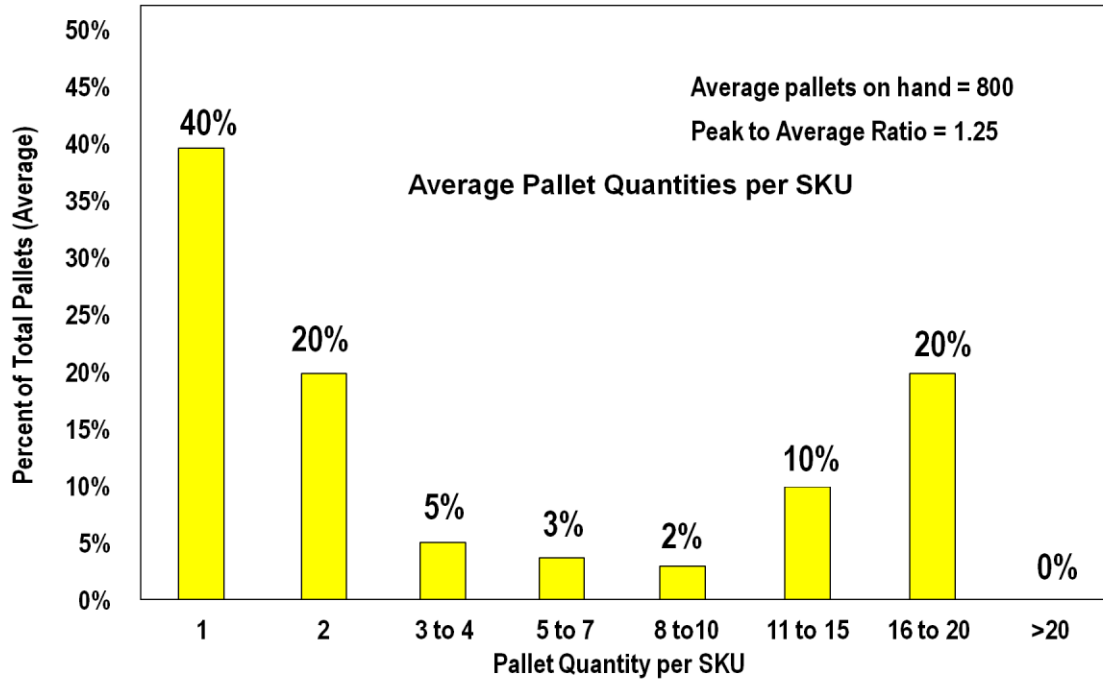
By reconstructing the inventory history of each item, a distribution or histogram has been prepared, showing the average pallet quantity on hand per SKU. This appears on the following page.

Notes

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The current warehouse uses a mix of floor stacking and single-deep pallet racks served by sit-down forklifts. New trucks are not in the budget. BKG has less than 100 empty positions and will have to add racks, if necessary, to store the new items.

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Notes

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Case Problem

Please read pages 1 & 2 of the case. Then answer the questions here.

Refer to RMA-2288 for ten potential storage methods and for some factors to consider.

Questions:

1. What storage methods make the most sense? Why?

2. What are the most important factors to consider when selecting storage methods?

3. What additional information would you like to have?

Notes

Comparing Unit Load Storage Equipment

Storage Equipment	Quantity per SKU	Practical Utilization Factor	Capacity (positions per sq. ft. or sq. m.)	Accessibility	Throughput Capacity	Ability to Store Variable Load Sizes	Special Requirements	Operating Sequence	Ease of Installation & Removal	Relative Cost per Position (Pallet Rack = 1.0)
Floor Stack	Large	0.5 – 0.7	High	Low	High	Very High	Stackable Load	LIFO	Very High	0
Stacking Frames	Medium	0.5 – 0.7	Medium	Low	Low	Low	Space for Empty Frames	LIFO	High	1
Pallet Rack	Small to Medium	0.85 – 0.9	Low	High	Medium to High	Medium	None	FIRO	Medium	1
Double Deep Pallet Rack	Medium	0.75 – 0.85	Medium	Medium	Medium	Medium	Deep Reach Trucks	LIFO	Medium	1
Pushback	Medium	0.7 – 0.8	Medium	Medium	Medium	Low	Stable Load	LIFO	Medium	3
Drive-in	Large	0.5 – 0.7	Medium	Low	Low to Medium	Low	Strong Pallet	LIFO	Medium	1.33
Drive-Thru	Large	0.6 – 0.75	Medium	Low	Low to Medium	Low	Strong Pallet	FIFO	Medium	1.33
Flow Rack	Large	0.5 – 0.7	High	Low	Very High	Low	Rolling or Sliding	FIFO	Low	4
Hi-Bay Racks	Small to Medium	0.9 – 0.95	Very High	High	Medium	Low	Good Quality Load	FIRO	Very Low	4
Mobile Rack	Small	0.9 – 0.95	High	Very Low	Very Low	Low	None	FIRO	Low	5

“Practical Utilization Factor” denotes the percentage of pallet positions occupied under normal working conditions. “Accessibility” indicates the percentage of positions which can be reached by the truck or material handling equipment without disturbing other loads (assuming fully-loaded conditions). LIFO means Last-In/First-Out. FIFO means First-In/First-Out. FIRO means First-In/Random Out and describes storage in which all loads are accessible and can be withdrawn in any order as needed.