How to Lay Out a Warehouse or Distribution Center

Case Problem: Storage Methods and Ergonomics

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Salad Bags, Inc. (SBI)

SBI produces bags of ready-to-eat salad. These are packed into corrugated cases, each weighing up to 7 lbs. (3 Kg). Cartons are palletized and stretch-wrapped at the end of each production line. From there, wrapped pallets are moved to a cooler 34°F (1.11°C) for short-term storage, order picking and shipping. Clamp trucks are used throughout since outgoing trailers are floor loaded. Popular items are ordered in full pallets.

Less-than-full pallet orders are case-picked to pallet jacks from full pallets sitting on the floor. At an average height of 64" (163 cm.) order-pickers struggle to start picking on a 95"–tall (2400 mm) pallet. Pallets are this tall to maximize trailer utilization when shipped. This ergonomic struggle continues until the top half of the pallet has been picked. See RMA-7205-2.

To gain storage capacity and save space, engineers have proposed 2-high pallet flow rack as shown on RMA-7205-3. The "front face" of the rack will be used for manual case-picking to pallet jacks. Clamp truck activity will be separated from manual picking and confined to the "rear face."

The upper level will be used as "push-back" accessed from the rear face. The bottom level will be used as gravity flow. If a full pallet is ordered, it will be picked from the upper level (rear face) to avoid interference with case picking. Full pallets will be lowered into gravity flow to replenish case picking.

Starting a new pallet and picking its top half will be even more challenging when the pallet is leaning forward 2.5 degrees in the flow rack and resting 11-3/4" (30 mm.) higher on rollers and a crossbeam.

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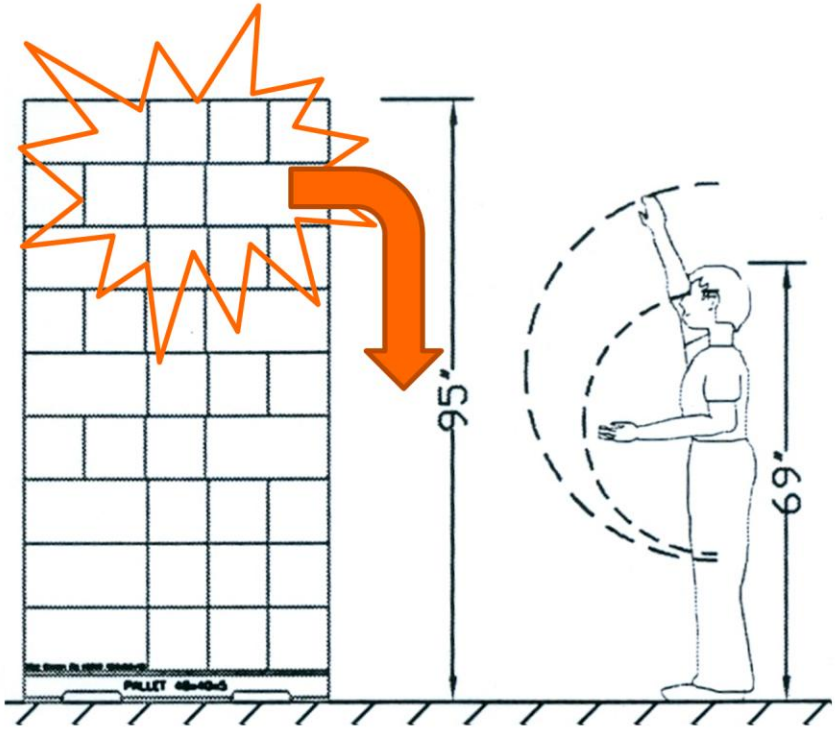
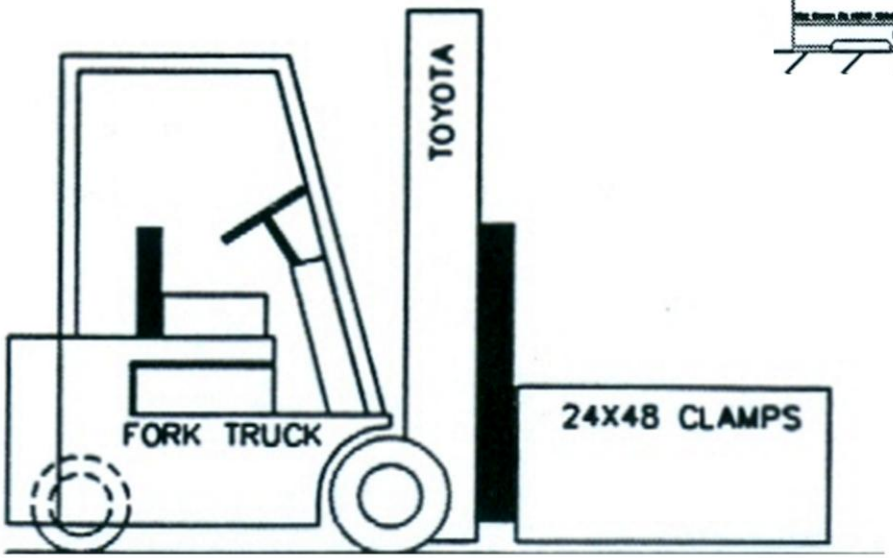
Salad Bags, Inc. (SBI) Current Situation

1. Full pallets arrive wrapped and 95” tall (2400 mm) to maximize refrigerated trailer utilization.
2. Also palletizer utilization in production.
3. Clamp truck lifts wrapped pallets off the pallet and places stack on trailer floor.
4. Less-than-full pallet orders are case picked from the floor to build and wrap tall mixed pallets.





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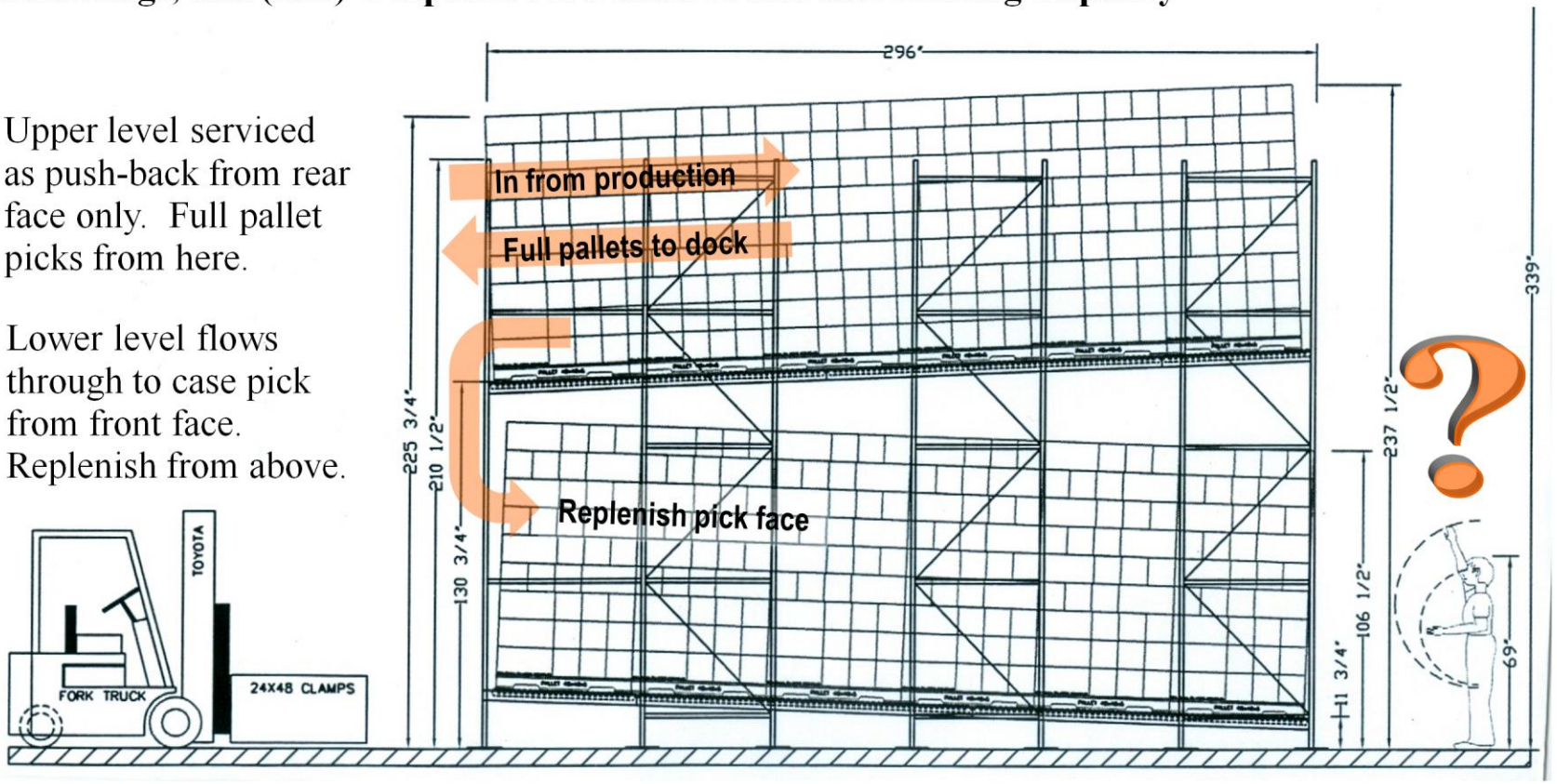
Salad Bags, Inc. (SBI) Proposed Flow Rack to Increase Holding Capacity

Upper level serviced as push-back from rear face only. Full pallet picks from here.

Lower level flows through to case pick from front face. Replenish from above.



Clamp trucks grip pallets. (Used for convenience since shipments are floor loaded).

Case pick from floor of front face. Cases are light (up to 7 lbs. max). How to start stretch wrapped pallet and pick down to comfortable reach?

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Salad Bags, Inc. (SBI)

Questions:

1. Would you implement case-picking from flow rack as proposed? _____

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2. What are the options for case picking if flow rack must be used to increase storage capacity?

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