A Healthy Start: School Health Designed its New Warehouse to Maximize Throughput

Presented by:
Beth Reed – School Health
Dan Wasilowski – Conveyor Solutions
Michael Wohlwend – Alpine Supply Chain
Agenda

School Health Overview

• Current State

Discuss the approach to build a New Warehouse

• Storage Type Analysis & Layout Alternatives
• Procure Equipment
• Slotting Optimization & Location Addressing System
• Oversee the Installation of Equipment
• Develop & Execute Move Plan

Lessons Learned
Business Operations Challenges

- Aggressive double-digit growth plan SH closing in on capacity limits of the Hanover Park distribution center.
- Growing breadth of products through company acquisitions and start-ups.
- Critical facility shortfalls causing inefficient productivity (receiving aisle, pick facings, conveyor accumulation, bin shelving, low ceiling height (CSH)).
- Limited or no office space
- Attracting and retaining top talent into the work place.
2018 Current State

- Hanover Park, IL (Chicago NW Suburb)
- 36.8k SF of ground floor warehouse space
- Infor on prem GUI ERP/WMS - not flexible
- 8,873 SKUs in house (20K+ including drop ship items)
- Pick to Cart
  - Shelving, Bin-Shelving (Packout or Induct to Conveyor)
- Pick to Tote
  - Carton Flow, Hand Stack (Cases & Each), Pallet Flow, Pallet
- Pick to Pallet
  - Full Case Pick
Original
Hanover Park, IL Layout
Goals for New Facility

- Accommodate YoY Growth
- Increase overall Throughput (increase number of docks, improve full case pick, reduce reserve pallet picks)
- Conveyor system and Controls for WCS (SRS by KVK, Inc.) must be easily expandable for future growth
- Provide newer conveyor technology (24 Volt- E24 by Hytrol) for a greener footprint
- Recent Acquisition
Future State 2019

- Rolling Meadows, IL (Chicago NW Suburb)
- 80,000 SF
- Infor on prem GUI ERP/WMS - not flexible
- 8,873 SKUs in house (20K+ including drop ship items)

Pick to Cart
- Shelving, Bin-Shelving (Packout or Induct to Conveyor)

Pick to Tote
- Carton Flow, Hand Stack (Cases & Each), Pallet Flow, Pallet

Pick to Pallet

Full Case Pick (Direct Ship w/ no manifest)

Pick to Carton
Storage Type Analysis & Layout

- Hired an independent consultant to leverage existing facility and growth
- Plan to house all warehouse operations & eliminate need for outside warehousing
- Conducted workshops with long term employees to understand pain points
- Core team researched industry best practices
- Worked with Equipment vendors to validate proposed layout
• Brought in CSI to supply conveyor per consultant’s layout.
• After review, CSI offered alternative layouts.
Conveyor Layout Options
Facility Layout

- Zone Pick from Shelving/Bins
  - Induct to conveyor

- Zone Pick along conveyor from Carton Flow / Hand Stack / Pallet Flow

- Separately Each and Case Pick from Pallet Racks
Procure Equipment & Install

- Procured all Rack and Installation services
- Partnered with Conveyor Solutions Inc. for new design, conveyor equipment, installation, aftermarket services and preventative maintenance
- Procured all conveyor and warehouse protective guarding and installation from Conveyor Solutions
3-way Conveyor Divert
School Health core team reconsidering results of NEW DC layout from Consultant

Knew they were spending too much on labor and felt too much bend/reach

Challenges: SKU data, WMS, and Peak Season

Constraints
- Layout is ‘fixed’, Rack and Shelving was Ordered
- Interleave of Carton Flow line with Hand Stack rack picking
- Order Pick Path is defined solely by the Location Sequence

Goals
- Minimize Replenishment, Travel, Bend & Reach
- Order Commonality, Like Item Separation
Challenge

- Peak / Non-Peak Line Balancing
  - Non-Peak
    - Balancing
      - Randomize along Carton Flow conveyor
  - Peak
    - In Process

Logical View of Hits % Rank
Challenge

- Like Item Separation
  - Hundreds of Like Item groups determined using ‘Description’
    - Additional constraints consider only these items that are close in size
      - (+/-) 25% L or W or H
    - Example:
Bin Layout

- Pick Sequence
- Peak vs non-Peak Volumes
- Pick Cart size

- Congestion
- Force Path around edge
Added Benefit

• Created All Rack Locations for Label Database Generation purposes

• Locked out 75% of the locations created – Reserve
Slotting Results

- Kickoff meeting was held January 2 - Slot Book delivered on February 7th
- Provide Slotting to accommodate Peak and non-Peak activity
- Fit the 9,000 SKUs into a Fixed Layout without major reconstruction
- Minimize pick & replenishment labor
  - Line balancing within Carton Flow rack
- Like Item Separation
- Order Commonality SKUs together
- Provide Labeling Scheme and database
Develop & Execute Move Plan

Key Milestones in order to #SHMOVE19

- Move began on March 9 @ 6am
- Needed to pick/pack and palletize over 8000 sku's
- Build out approximately 77 Full 53’ Truckloads
- Build over 1200+ skids
- Label over 5500 bin shelves and 3000 rack locations
- Learn how to drive eight new pieces of equipment
- Learn a brand new pick/pack & ship path
- Re-label over 1000+ totes for conveyor divert

Completed physical move in just 4 days!!! March 12th we exited HP (2 days under target)

Began shipping in RM on March 18th as planned (hit over 2000 lines/day)

Cleared the company backlog by March 29th to become current (two weeks under target)
Warehouse Improvements
In both design and layout

- State of the Art Conveyor w/Real Time Automation
- LED Lighting throughout with Motion Sensors
- Four Shipping & four Receiving Dock Doors (direct to UPS trailer)
- Significant Storage expansion in Racking, Bin Shelving and Case Flow
- 10 8’ Pack Stations w/22’ Accumulation
- 32’ CSH - Increased Vertical Capacity
- Eight New Raymond Powered Lift Trucks

POWERED BY POSSIBILITIES.
<table>
<thead>
<tr>
<th>Lessons Learned</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Start your planning early. You will need more time than you think.</strong></td>
</tr>
<tr>
<td><strong>Be inclusive and engage key personnel to tap your company’s internal knowledge.</strong></td>
</tr>
<tr>
<td><strong>Engage knowledgeable consultants and vendors. Leverage their expertise to fast-track large projects.</strong></td>
</tr>
<tr>
<td><strong>Track, measure and manage. Build a timeline and document your milestones. Know that issues and obstacles will arise along the way.</strong></td>
</tr>
<tr>
<td><strong>Run a dress rehearsal (or three!) before going live.</strong></td>
</tr>
</tbody>
</table>
WE SURVIVED THE MOVE!!!!!
For more information:

Speaker email: Dan@conveyorsolutions.com
Website: www.conveyorsolutions.com
Speaker #2 email: Michael.Wohlwend@AlpineSupplyChain.com
website: www.alpinesupplychainsolutions.com
Or visit MODEX Booth 1707