

# A Healthy Start:

School Health Designed its New Warehouse to Maximize Throughput

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powered by  MHI

# SCHOOL HEALTH<sup>®</sup> expanding the possibilities



# 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



# 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



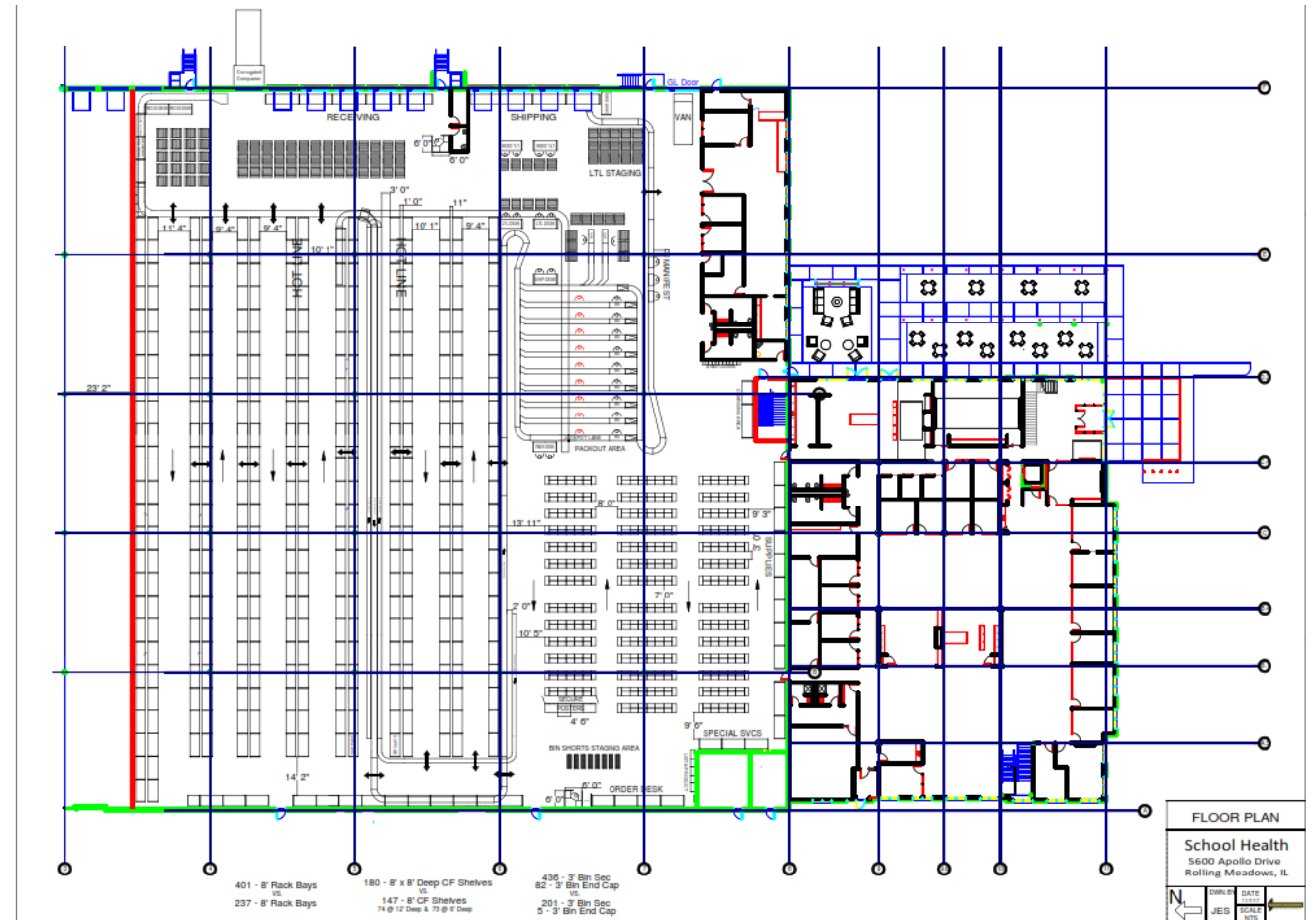
Core team researched industry best practices

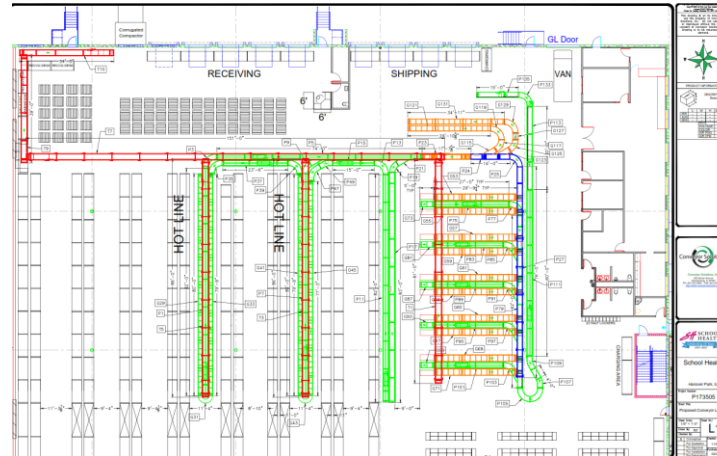
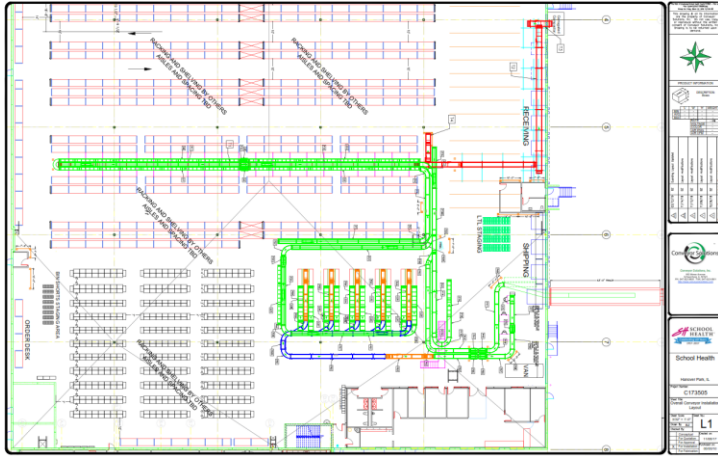


Worked with Equipment vendors to validate proposed layout

# Original Layout

- Brought in CSI to supply conveyor per consultant's layout.
- After review, CSI offered alternative layouts.

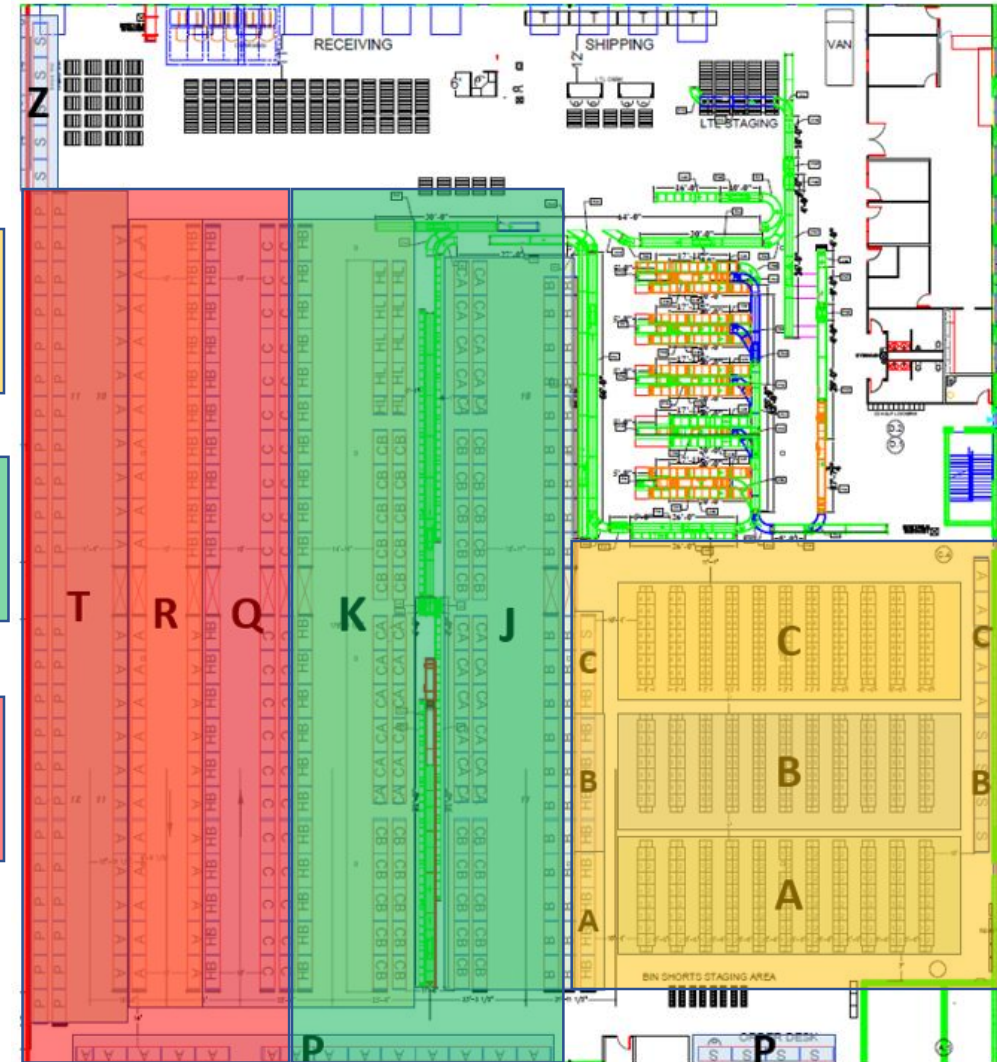




# Conveyor Layout Options

# 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



# Slotting Optimization



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

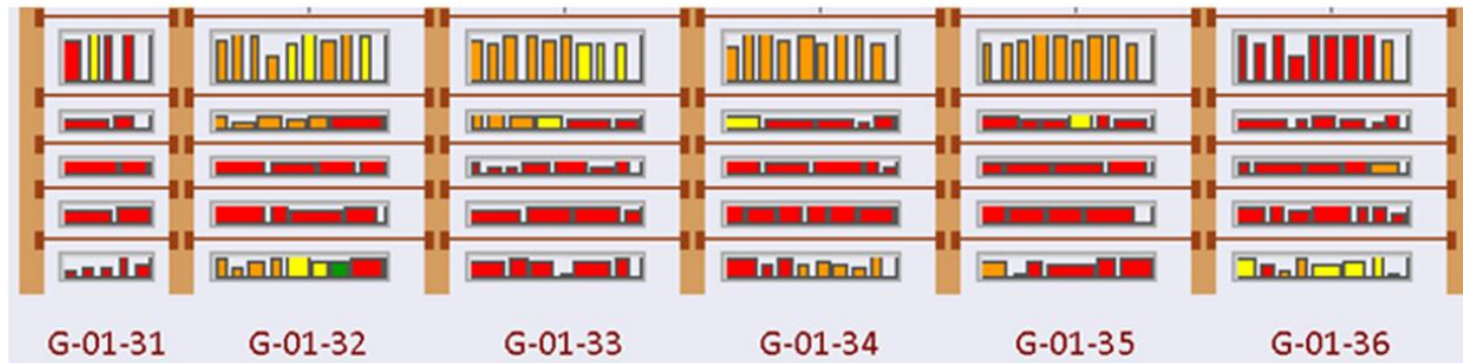
# Challenge

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

Logical View of Hits % Rank

♦ Hits % Rank

- ✓ ● Tier 1: 0% to 20% (Most Hits)
- ✓ ● Tier 1: 20% to 40%
- ✓ ● Tier 1: 40% to 60%
- ✓ ● Tier 1: 60% to 80%
- ✓ ● Tier 1: 80% to 100% (Least Hits)

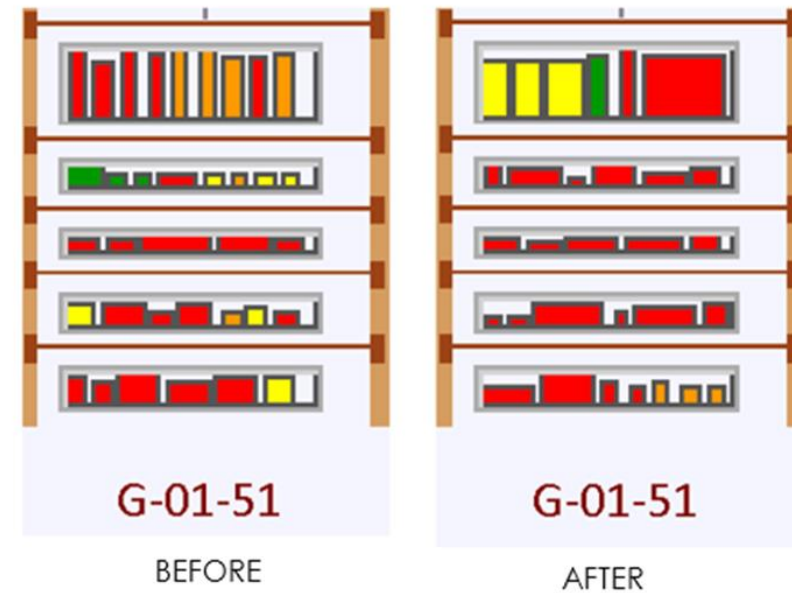
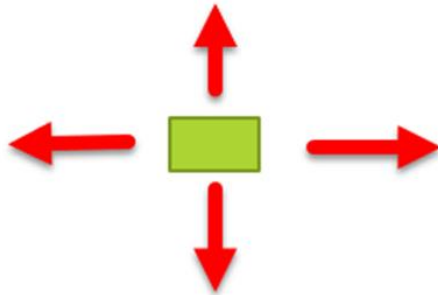




# Challenge

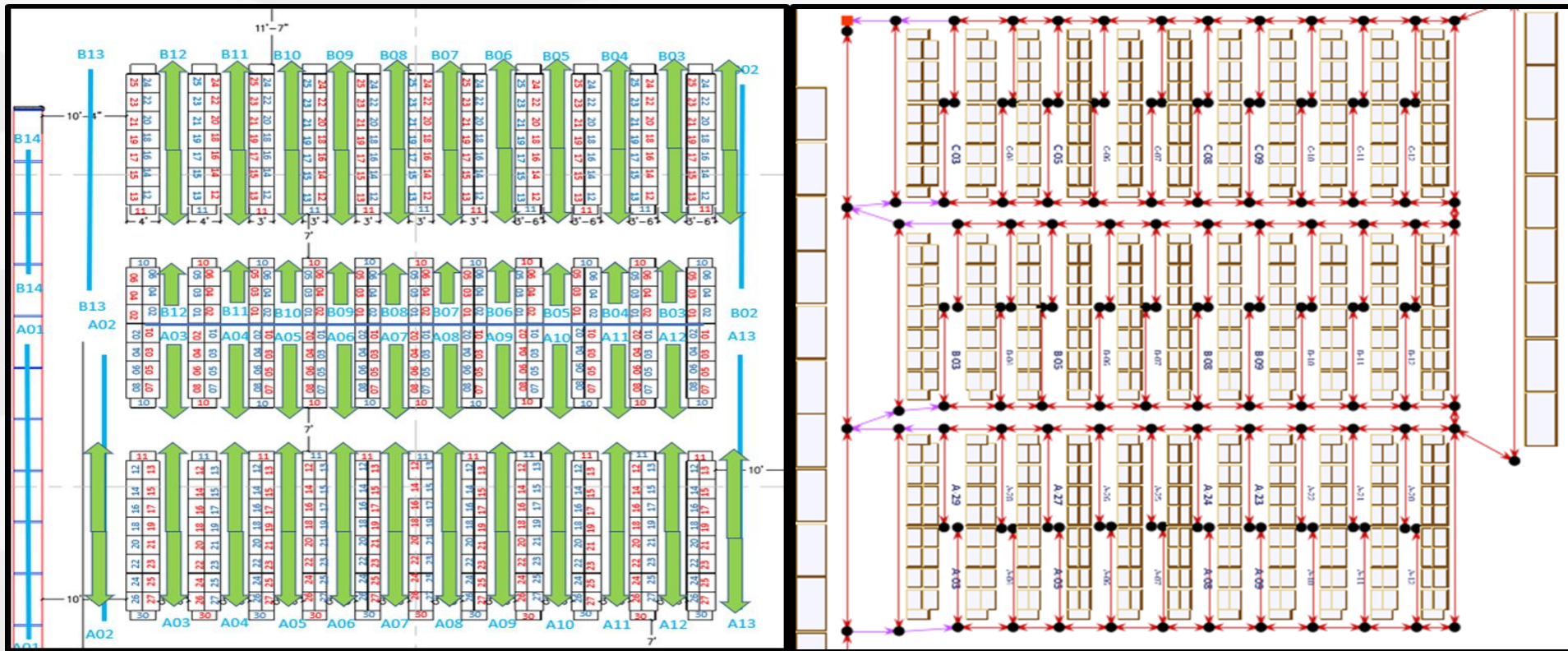
- Like Item Separation

- 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:



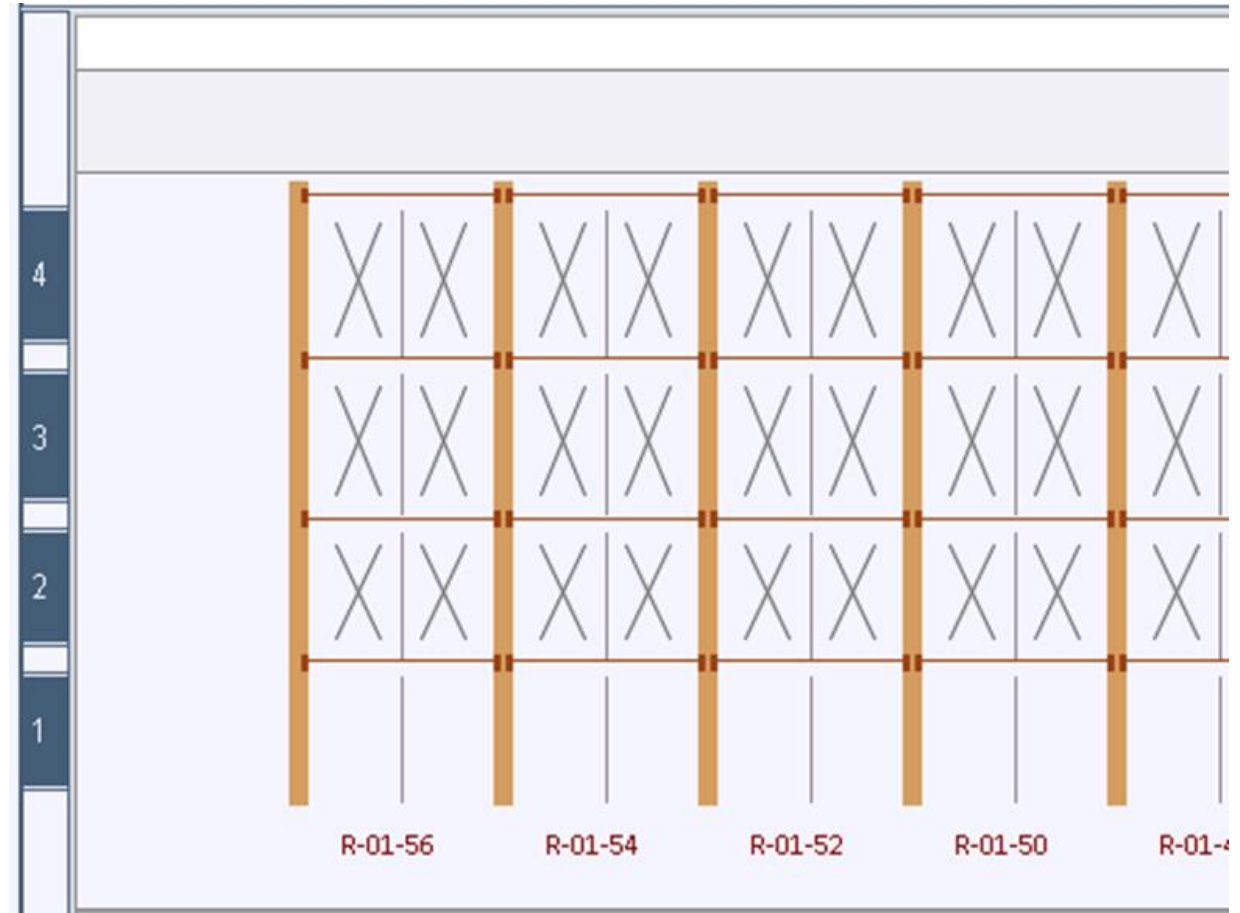
# Bin Layout

- Pick Sequence
- Peak vs non-Pick 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 12<sup>th</sup>  
we exited HP  
(2 days  
under target)

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

Cleared the  
company  
backlog by  
March 29<sup>th</sup> to  
become current  
(two weeks  
under target)

# Warehouse Improvements

In both design and layout

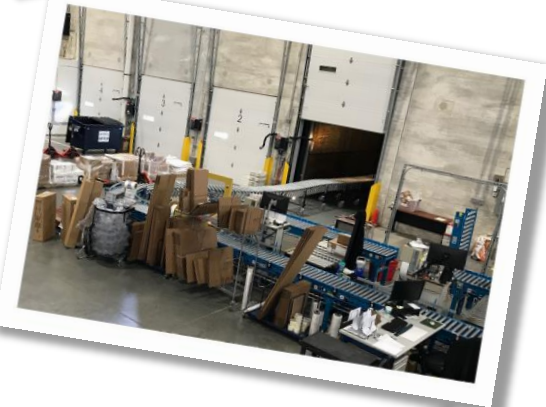


10 8' Pack  
Stations  
w/22'  
Accumulation

State of the Art  
Conveyor w/Real  
Time Automation

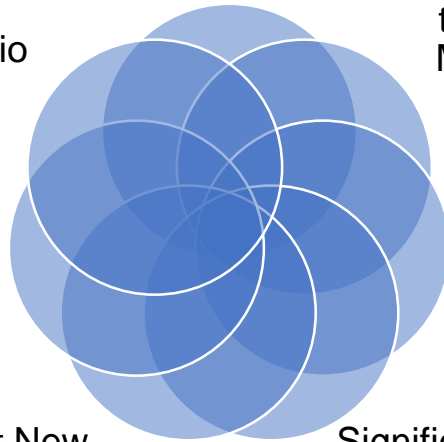


LED Lighting  
throughout with  
Motion Sensors



Four Shipping  
& four  
Receiving  
Dock Doors  
(direct to UPS  
trailer)

32' CSH  
-  
Increased  
Vertical  
Capacity



Eight New  
Raymond  
Powered Lift  
Trucks



Significant Storage  
expansion in Racking,  
Bin Shelving and Case  
Flow



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# Lessons Learned



Start your planning early. You will need more time than you think.



Be inclusive and engage key personnel to tap your company's internal knowledge.



Engage knowledgeable consultants and vendors. Leverage their expertise to fast-track large projects.



Track, measure and manage. Build a timeline and document your milestones. Know that issues and obstacles will arise along the way.



Run a dress rehearsal (or three!) before going live.

# WE SURVIVED THE MOVE!!!!



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