

Building a Omni-Channel Distribution Center A Case Study



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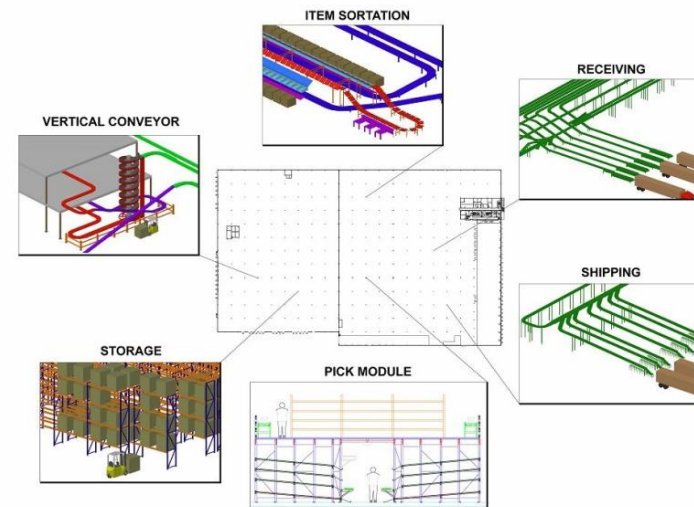
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About W&H

- Established in 1964
- America's most experienced MHS Integrator
- Complete In-House capabilities
 - Consulting
 - System Design
 - Installation
 - Software & Controls
 - Service & Support





About L'Occitane

HOW TO SAY L'OCCITANE ?

“LOX-EE-TAHN”

- Began in 1976, in Provence, France
- is a global, natural and organic ingredient-based cosmetics and well-being products manufacturer and retailer
- In 2013, L'OCCITANE had a presence in over 90 countries, with over 2,200 stores.
- L'Occitane sells through 3 major Channels with a shared Inventory





What is Omni-Channel

- Omni-Channel Sales
- Omni-channel distribution
 - Store replenishment
 - e-commerce fulfillment
 - Returns processing
 - Specialty labeling
 - In-store pick-up
 - ship-to-store
 - Wholesale
 - Product customization

FIND WHAT'S NEXT.



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Recognition of a Dream



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Project Overview

L'Occitane en Provence engaged W&H Systems to assist them in conceptualizing, sizing and designing a new distribution center.

Activities that have taken place to date include:

- A review of current processes within the current Lyndhurst distribution center
- Submission of a data questionnaire
- Development of a process flowchart of the current operation
- Development, and review with company management, of parameters and assumptions to used in the design
- Review of the present and new Warehouse Management Software (Geode) functionality
- Design New Distribution Center
- Implementation of New Distribution Center

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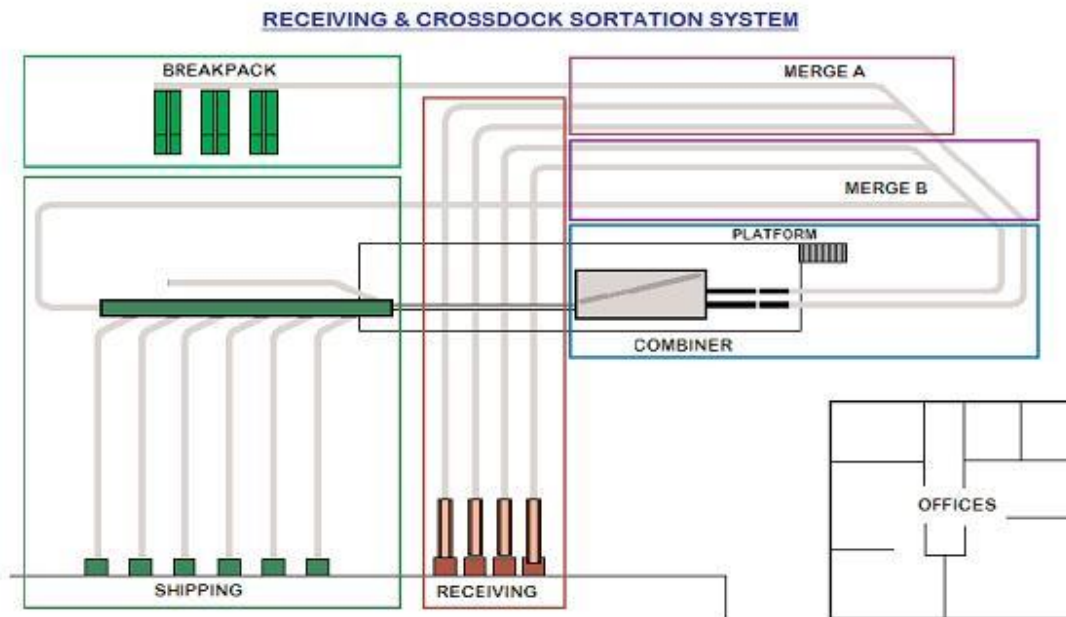
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Adding Warehouse Control System (WCS)

Key Capabilities Include:

- Relieving a customer host computer (WMS) of managing a real-time material handling automation interface
- Maximizing system throughput and performance
- Utilizing the most efficient methods for pallet, case and item routing.



Special Features:

- Wave Creation
- Weekly Planning Tools
- Wave Management
- Receiving, Print and Apply
- PDA (RF Scan) Sorter
- Aftersort Status Monitoring
- PDA Packout
- Piece Sorter Control
- Picker Planning
- Pick and Pass Management
- Put to Light Interface and Management
- Put to Voice Interface and Management
- Voice Picking

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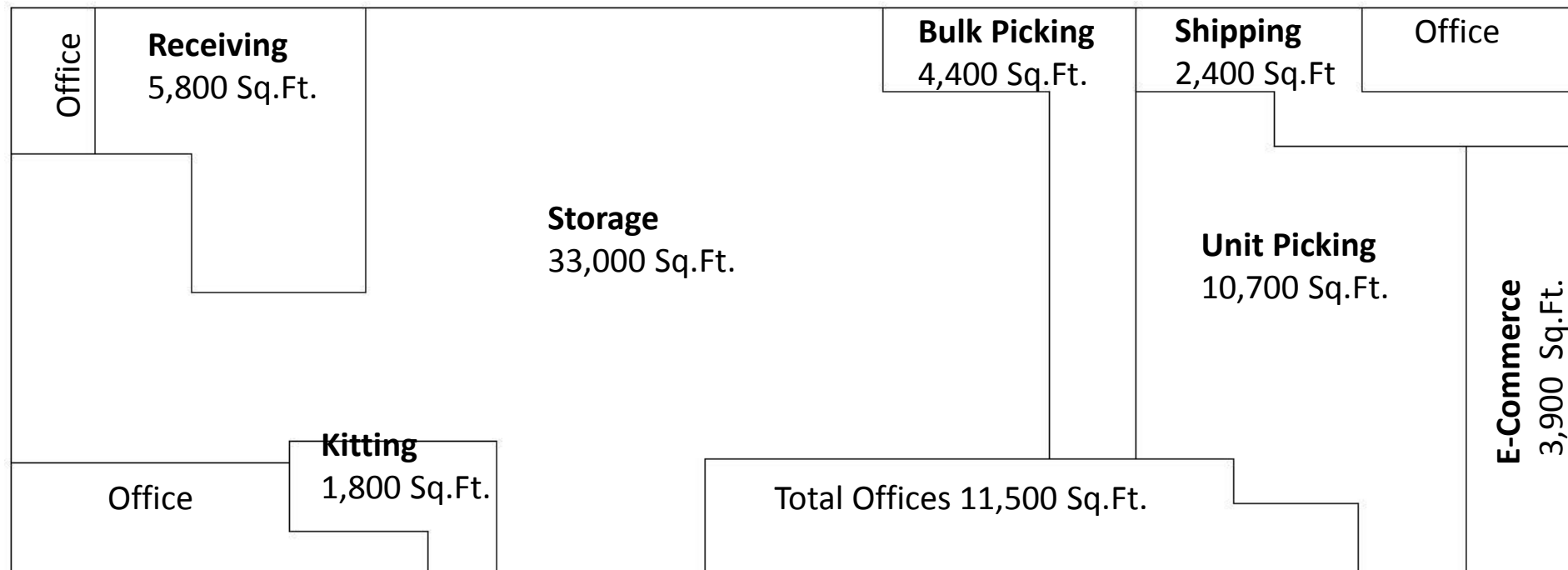


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L'OCCITANE Original Facility Layout



TOTAL: 73,500 Sq.Ft.

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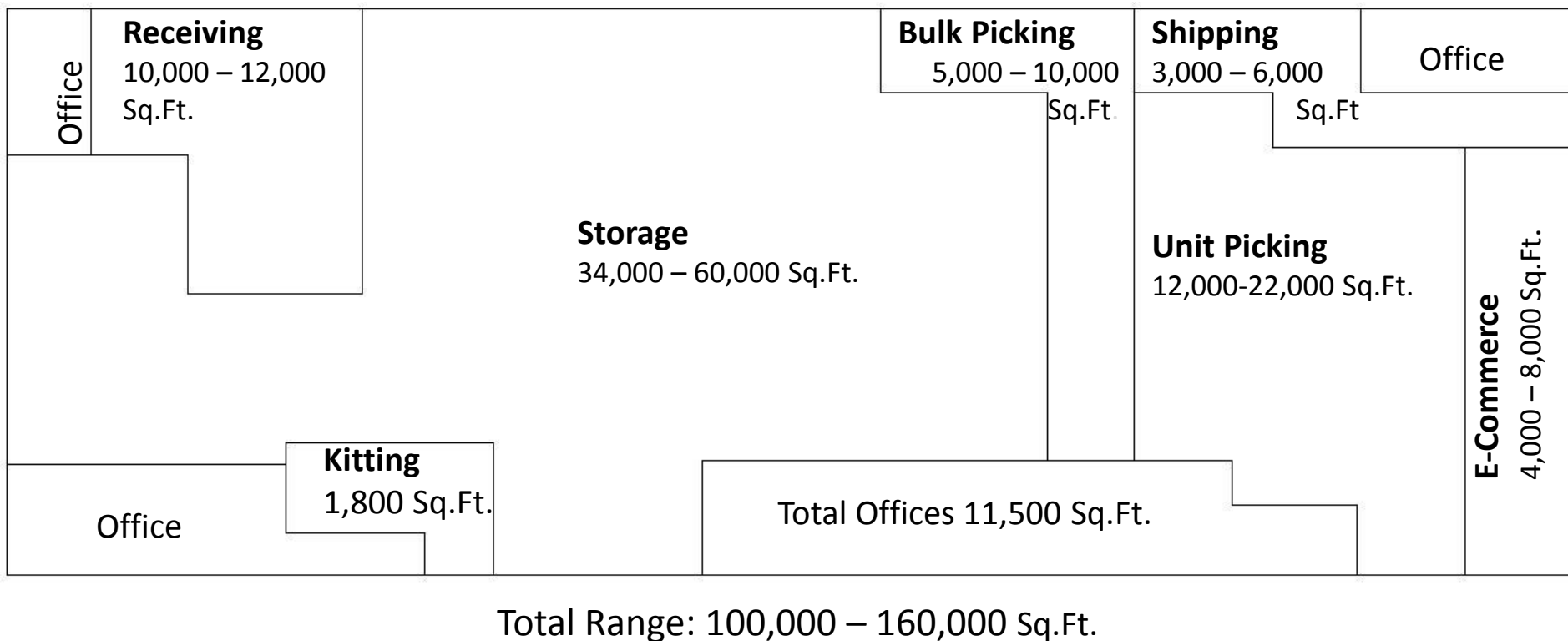


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Estimated Future Space Requirements



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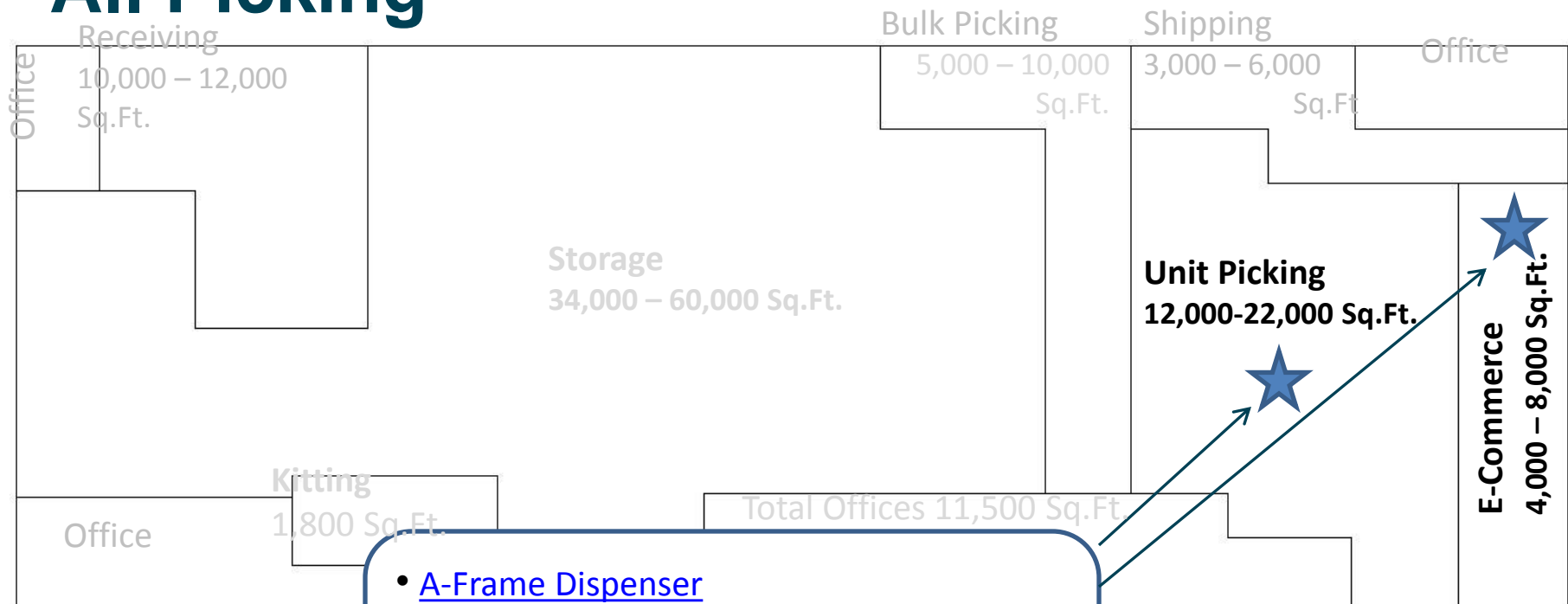


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Operating Concepts All Picking



- [A-Frame Dispenser](#)
- [Unit Sortation via Tray or Cross Belt Sorter](#)
- [Unit Sortation via BomBay Sorter](#)
- [Carton Flow Rack via "Pick-To-Light"](#)
- [Flow Rack via "Voice"](#)

A-Frame Item Dispenser



Description	PROS	CONS
Contains many small items and dispenses them onto a roller belt for an order. The moving belt drops the item for the order into a shipping carton or tote	<ul style="list-style-type: none"> • Very high dispensing rate 	<ul style="list-style-type: none"> • Must be replenished constantly to maintain dispenser inventory • Very expensive, must have very high volumes to justify the investment

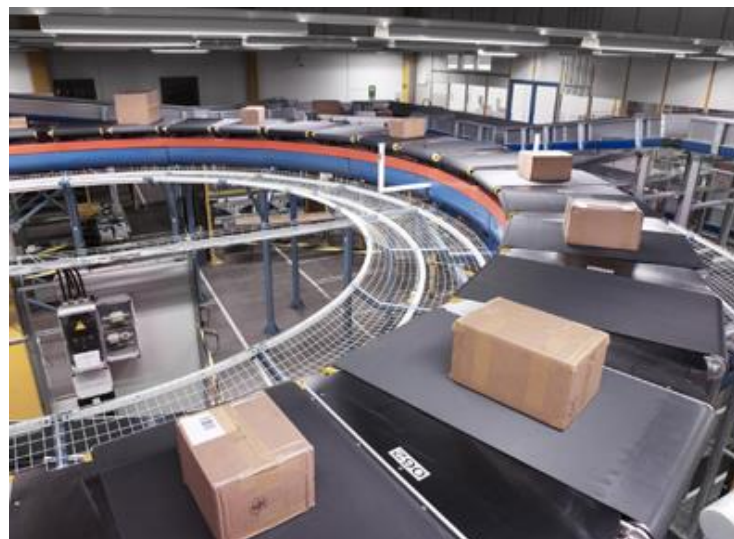


Unit Sortation via Tray or Cross-Belt

Tray Sorter



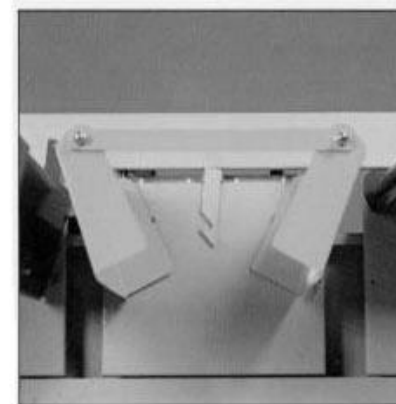
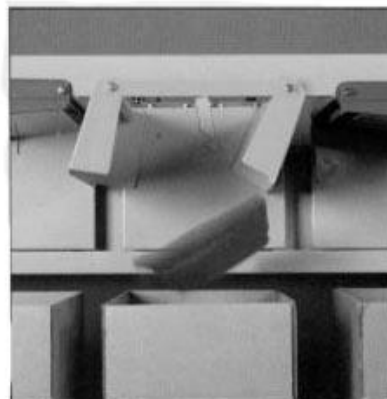
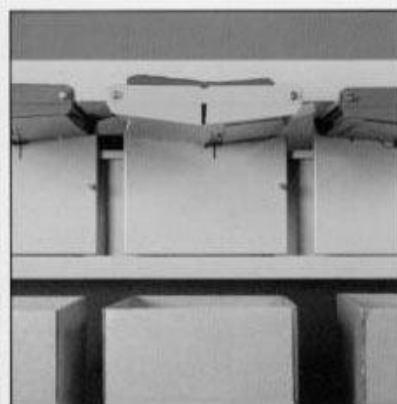
Cross-Belt Sorter



Description	PROS	CONS
Individual units are batch picked by waves and are placed onto a tray or cross-belt "cell" as it passes by in a loop configuration. Units are then diverted down chutes per order requirements.	<ul style="list-style-type: none"> • Very Productive order fulfillment • Capable of high throughput rates 	<ul style="list-style-type: none"> • Must have daily minimum quantities to justify investment • Not recommended for delicate packaged items



Unit Sort via Bomb Bay Sorter



Description	PROS	CONS
Uses the same concept as a tray or cross-belt sorter but cells are a "Bomb Bay" drop doors.	<ul style="list-style-type: none"> • Productive order fulfillment 	<ul style="list-style-type: none"> • Must have daily minimum quantities to justify investment • Not recommended for delicate items due to the impact in the "drop" action.

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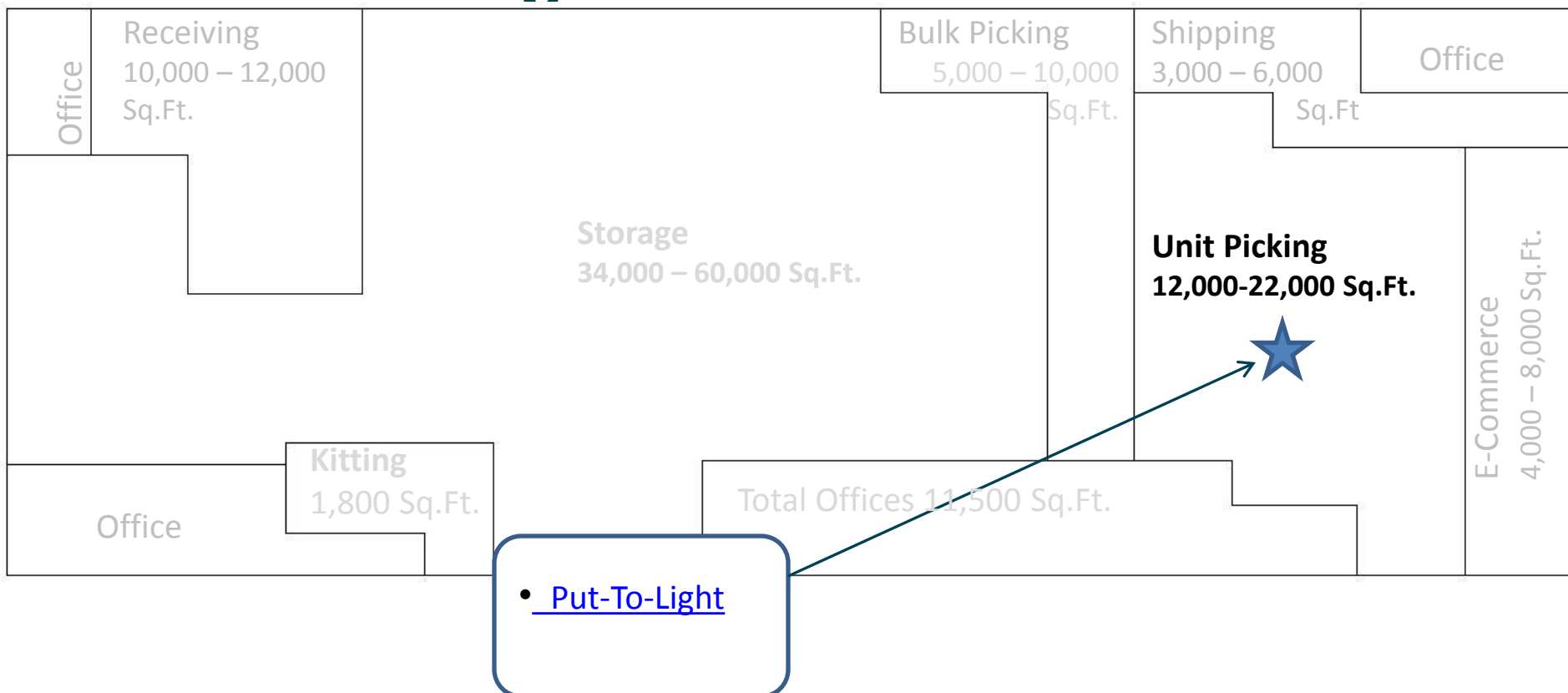


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Operating Concepts Retail Picking





Pick-to-Light



Description	PROS	CONS
Units are picked as directed from lights over open cartons in flow rack with many levels. Units are placed in shipping cartons and passed to the next operator station.	<ul style="list-style-type: none">• Great for high density picks• Improved picking productivity versus "RF" picking	<ul style="list-style-type: none">• One slow picker might slow down other pickers down stream

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Put-to-Light



Description	PROS	CONS
Packers pack to retail store cartons from single SKU cartons as directed by lights above each store carton location.	<ul style="list-style-type: none">• High packing productivity• Accurate store order fulfillment• Appropriate for retail store pushed items and/or replenishment	<ul style="list-style-type: none">• Packers must be constantly supplied with merchandise

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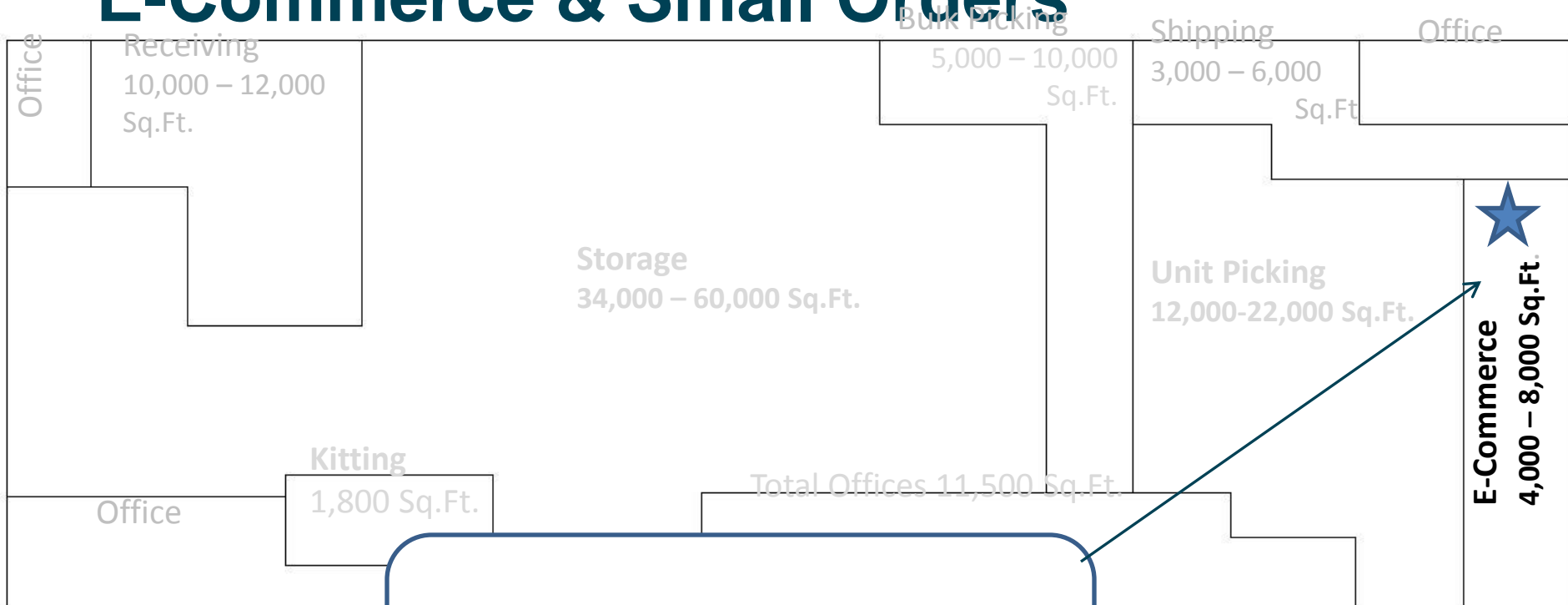
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Operating Concepts E-Commerce & Small Orders



- [Pick-to-Cart via Light or “RF”](#)
- [Horizontal Carousels](#)



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Pick from Cart via Light



Description	PROS	CONS
Pickers travel down a pick aisle and pick units for multiple orders as directed using lights over each order carton or by "RF".	<ul style="list-style-type: none">• Improved productivity over picking individual orders• Appropriate for small orders such as E-Commerce	<ul style="list-style-type: none">• If too many pickers are in an aisle, congestion can slow down their pick.





Horizontal Carousels



Description	PROS	CONS
Units are stored in shelves on a rotating carousel. Shelves rotate to an SKU location required for an order as directed by scanning an order barcode.	<ul style="list-style-type: none"> Operators can pick from three carousels at one time Appropriate for very small cube items with medium to slow selling velocity 	<ul style="list-style-type: none"> Operators might have to wait while carousels rotate Replenishment must be from the picking end of the carousels and therefore only performed when not picking.





Voice Picking



Description	PROS	CONS
Units are picked as directed by voice from open cartons in flow rack with many levels. Units are placed in shipping cartons and passed to the next operator station.	<ul style="list-style-type: none">• Great for high density picks• Improved picking productivity versus "RF" picking• Pickers can pass each other	<ul style="list-style-type: none">• Operator can not pick but one SKU at a time

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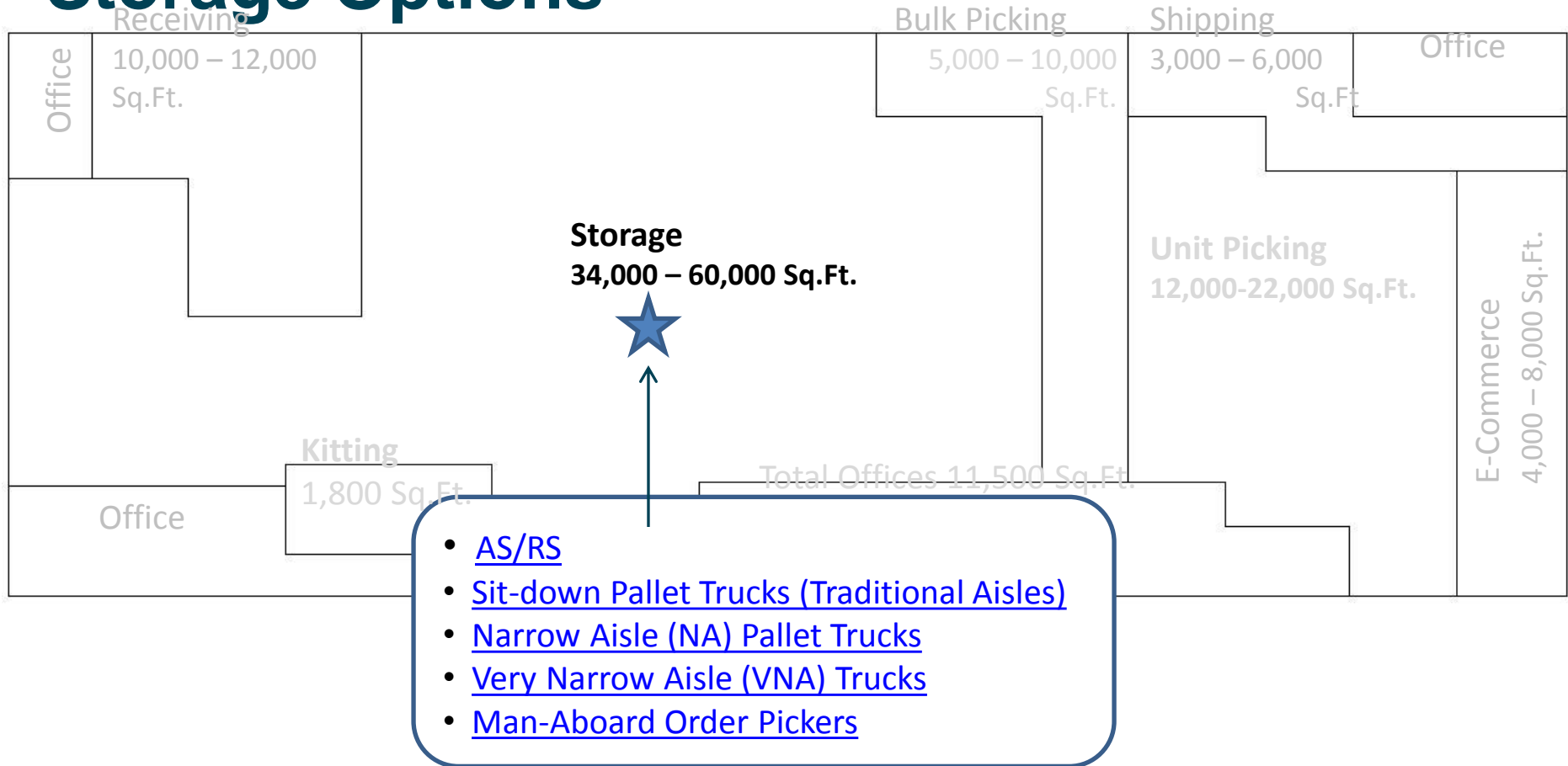
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Operating Concepts Storage Options





AS/RS – Automated Storage and Retrieval Systems



Description	PROS	CONS
Pallets or cartons are stored in very narrow aisles accessed by a crane.	<ul style="list-style-type: none"> • Very dense storage 	<ul style="list-style-type: none"> • Access is limited by the crane speed • Requires a very high capital investment



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Sit-Down Pallet Trucks



Description	PROS	CONS
Sit-down trucks move pallet loads into and out of rack, floor storage and trucks.	<ul style="list-style-type: none">• Appropriate for loading/unloading of trucks/containers and moving pallets from docks to and from storage.	<ul style="list-style-type: none">• Requires 11-13 foot storage aisles



Narrow Aisle Pallet Trucks



Description	PROS	CONS
Narrow aisle trucks move pallets into and out of storage rack and floor storage locations	<ul style="list-style-type: none"> • Appropriate for moving pallets from docks to and from storage • Requires 8.5-10 foot storage aisles 	<ul style="list-style-type: none"> • Cannot load/unload trucks or containers

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Very Narrow Isle Turret Lift Trucks



Description	PROS	CONS
These trucks operate in 6 foot storage aisles.	<ul style="list-style-type: none">• Very dense storage	<ul style="list-style-type: none">• Requires wire guidance• Only one truck can operate in an aisle at one time• Very expensive compared to traditional or narrow aisle trucks





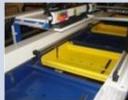


Man-Aboard Order Pickers



Description	PROS	CONS
These trucks allow an operator to move up with a pallet and put away or pick individual cartons from all levels of storage rack.	<ul style="list-style-type: none">• Very productive compared to dropping pallets, picking off case and replacing pallets.• Full cases can be picked for orders or forward pick replenishment directly from reserve pallets.	<ul style="list-style-type: none">• Requires wire guidance if used in VNAs• Reduced forward movement at higher elevations



Operating Concepts All Picking

Concept	Description	PROS	CONS	Thumbnail
A-Frame Dispenser	Contains many small items and dispenses them onto a roller belt for an order. The moving belt drops the item for the order into a shipping carton or tote	<ul style="list-style-type: none"> • Very high dispensing rate 	<ul style="list-style-type: none"> • Must be replenished constantly to maintain dispenser inventory • Very expensive, must have very high volumes to justify the investment 	
Unit Sortation via Tray or Cross Belt Sorter	Individual units are batch picked by waves and are placed onto a tray or cross-belt "cell" as it passes by in a loop configuration. Units are then diverted down chutes per order requirements.	<ul style="list-style-type: none"> • Very Productive order fulfillment • Capable of high throughput rates 	<ul style="list-style-type: none"> • Must have daily minimum quantities to justify investment • Not recommended for delicate packaged items 	
Unit Sortation via BomBay Sorter	Uses the same concept as a tray or cross-belt sorter but cells are a "Bomb Bay" drop doors.	<ul style="list-style-type: none"> • Productive order fulfillment 	<ul style="list-style-type: none"> • Must have daily minimum quantities to justify investment • Not recommended for delicate items because due to the impact in the "drop" action. 	
Pick from carton flow rack via Pick-To-Light	Units are picked as directed from lights over open cartons in flow rack with many levels. Units are placed in shipping cartons and passed to the next operator station.	<ul style="list-style-type: none"> • Great for high density picks • Improved picking productivity versus "RF" picking 	<ul style="list-style-type: none"> • One slow picker might slow down other pickers down stream 	
Pick from carton flow rack via "Voice"	Units are picked as directed by voice from open cartons in flow rack with many levels. Units are placed in shipping cartons and passed to the next operator station.	<ul style="list-style-type: none"> • Great for high density picks • Improved picking productivity versus "RF" picking • Pickers can pass each other 	<ul style="list-style-type: none"> • Operator can not pick but one SKU at a time 	



Operating Concepts Retail Picking

Concept	Description	PROS	CONS	Thumbnail
Put-To-Light	Packers pack to retail store cartons from single SKU cartons as directed by lights above each store carton location.	<ul style="list-style-type: none"> • High packing productivity • Accurate store order fulfillment • Appropriate for retail store pushed items and/or replenishment 	<ul style="list-style-type: none"> • Packers must be constantly supplied with merchandise 	

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Operating Concepts E-Commerce & Small Orders

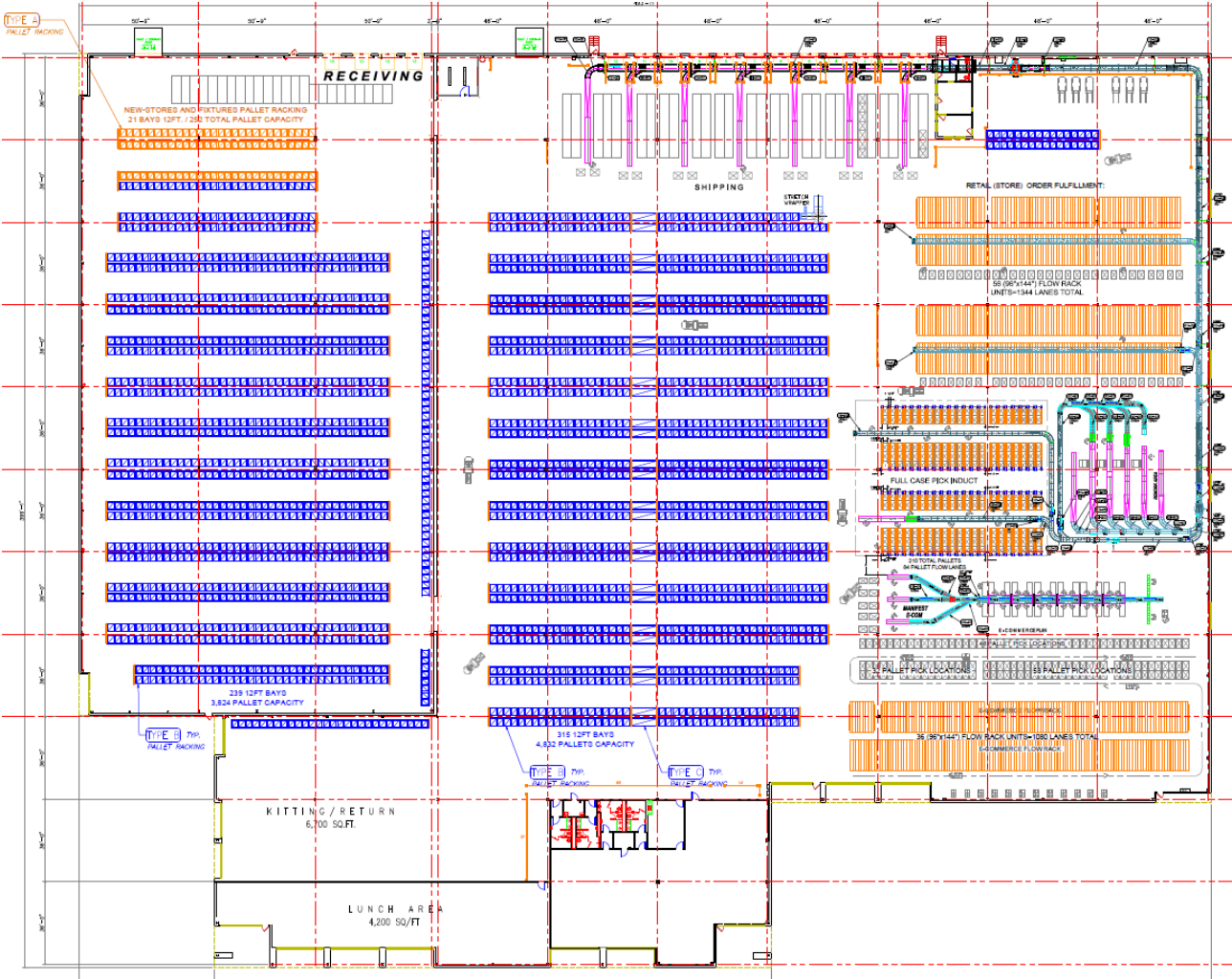
Concept	Description	PROS	CONS	Thumbnail
Pick to Cart via light or "RF"	Pickers travel down a pick aisle and pick units for multiple orders as directed using lights over each order carton or by "RF".	<ul style="list-style-type: none">• Improved productivity over picking individual orders• Appropriate for small orders such as e.commerce	<ul style="list-style-type: none">• If too many pickers are in an aisle, congestion can slow down their pick.	
Horizontal Carousels	Units are stored in shelves on a rotating carousel. Shelves rotate to an SKU location required for an order as directed by scanning an order barcode.	<ul style="list-style-type: none">• Operators can pick from three carousels at one time• Appropriate for very small cube items with medium to slow selling velocity	<ul style="list-style-type: none">• Operators might have to wait while carousels rotate• Replenishment must be from the picking end of the carousels and therefore performed when not picking.	



Operating Concepts Storage

Concept	Description	PROS	CONS	Thumbnail
AS/RS	Pallets or cartons are stored in very narrow aisles accessed by a crane.	<ul style="list-style-type: none"> • Very dense storage 	<ul style="list-style-type: none"> • Access is limited by the crane speed • Requires a very high capital investment 	
Sit-down Pallet Trucks – Traditional	Sit-down trucks move pallet loads into and out of rack, floor storage and trucks.	<ul style="list-style-type: none"> • Appropriate for loading/unloading of trucks/containers and moving pallets from docks to and from storage. 	<ul style="list-style-type: none"> • Requires 11-13 foot storage aisles 	
Narrow Aisle (NA) Pallet Trucks	Narrow aisle trucks move pallets into and out of storage rack and floor storage locations	<ul style="list-style-type: none"> • Appropriate for moving pallets from docks to and from storage • Requires 8.5-10 foot storage aisles 	<ul style="list-style-type: none"> • Cannot load/unload trucks or containers 	
Very Narrow Aisle (VNA) Trucks	These trucks operate in 6 foot storage aisles.	<ul style="list-style-type: none"> • Very dense storage 	<ul style="list-style-type: none"> • Requires wire guidance • Only one truck can operate in an aisle at one time • Very expensive compared to traditional or narrow aisle trucks 	
Man-Aboard Order Pickers	These trucks allow an operator to move up with a pallet and put away or pick individual cartons from all levels of storage rack.	<ul style="list-style-type: none"> • Very productive compared to dropping pallets, picking off case and replacing pallets. • Full cases can be picked for orders or forward pick replenishment directly from reserve pallets. 	<ul style="list-style-type: none"> • Require wire guidance if used in VNAs • Reduced forward movement at higher elevations 	

As Built



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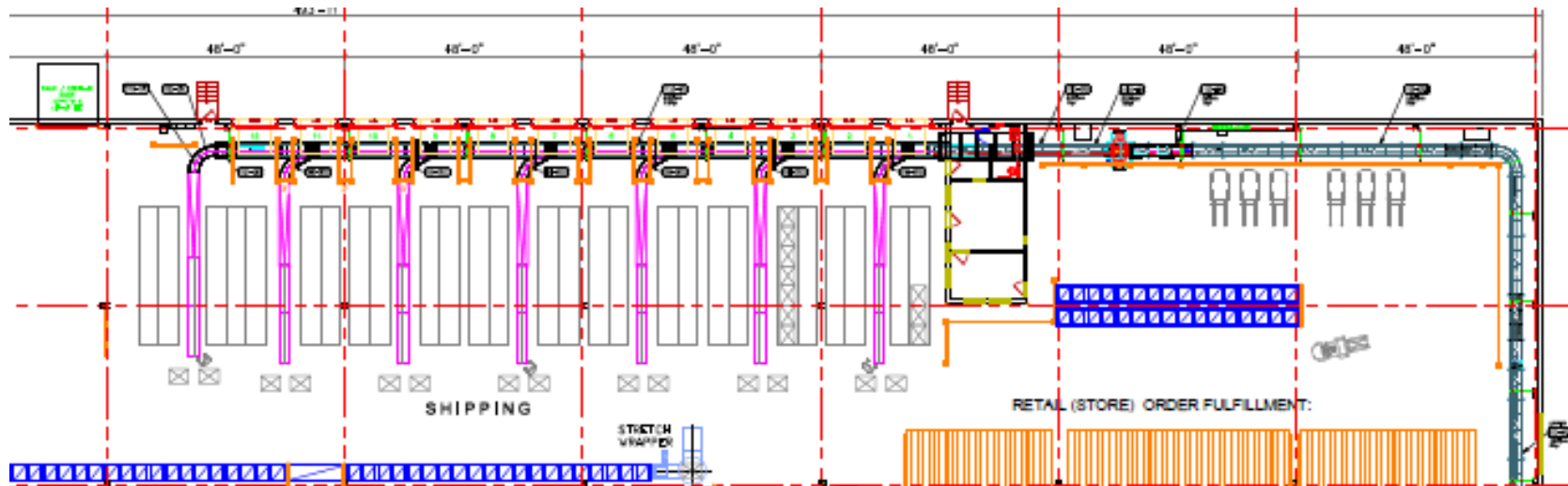
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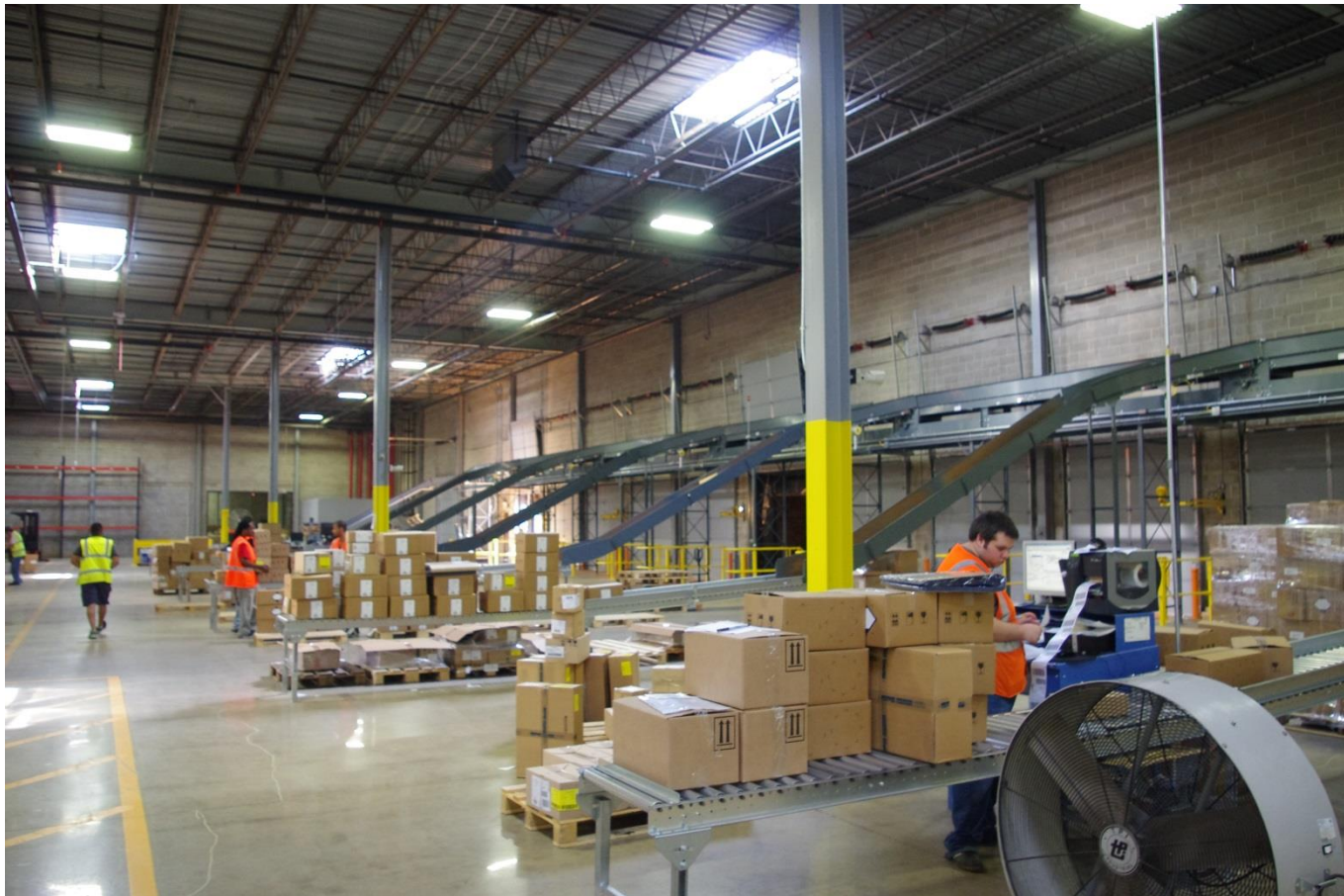
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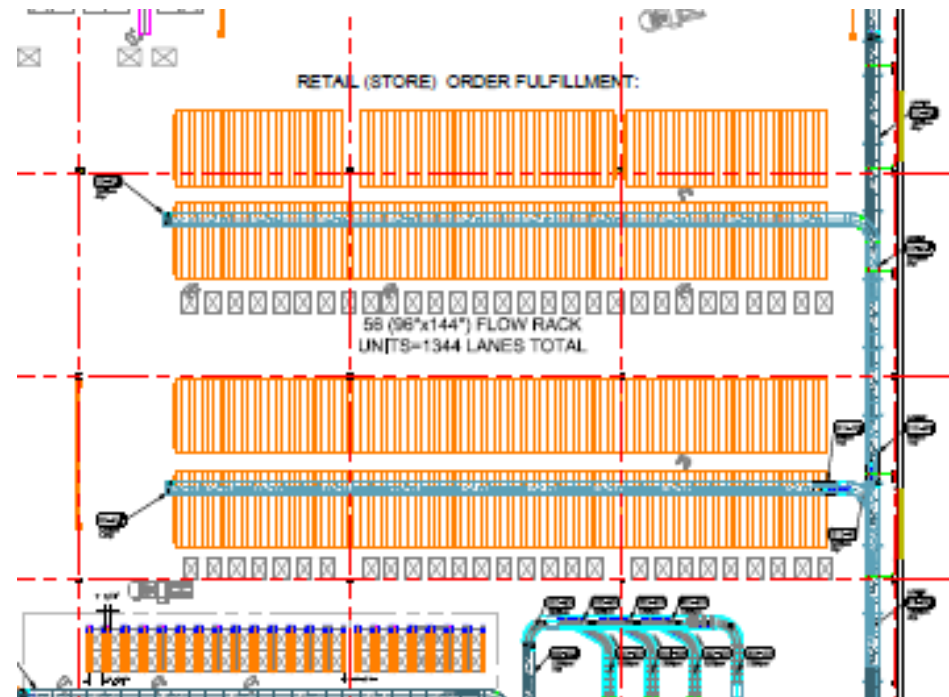
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Retail Picking



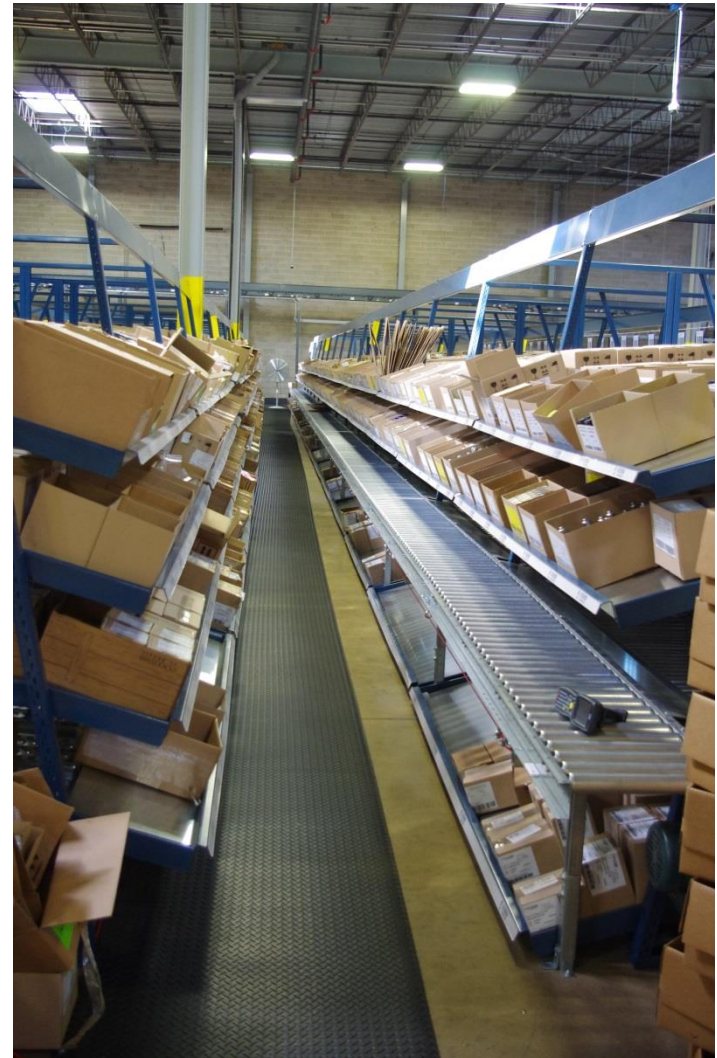
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A S S E L A P U L W E S W D R A W S Y L

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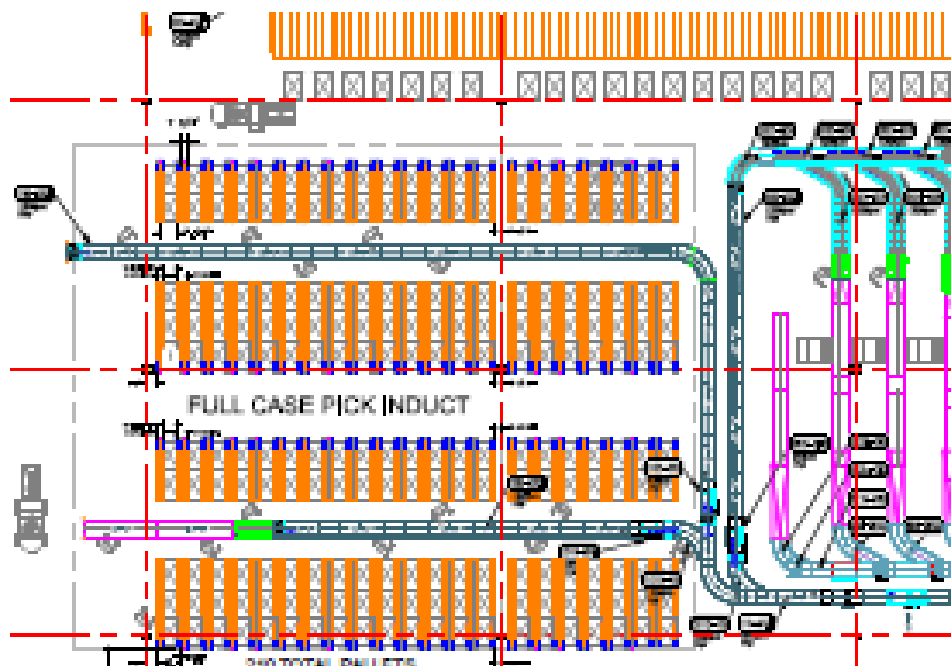
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Full Case- Retail & Wholesale



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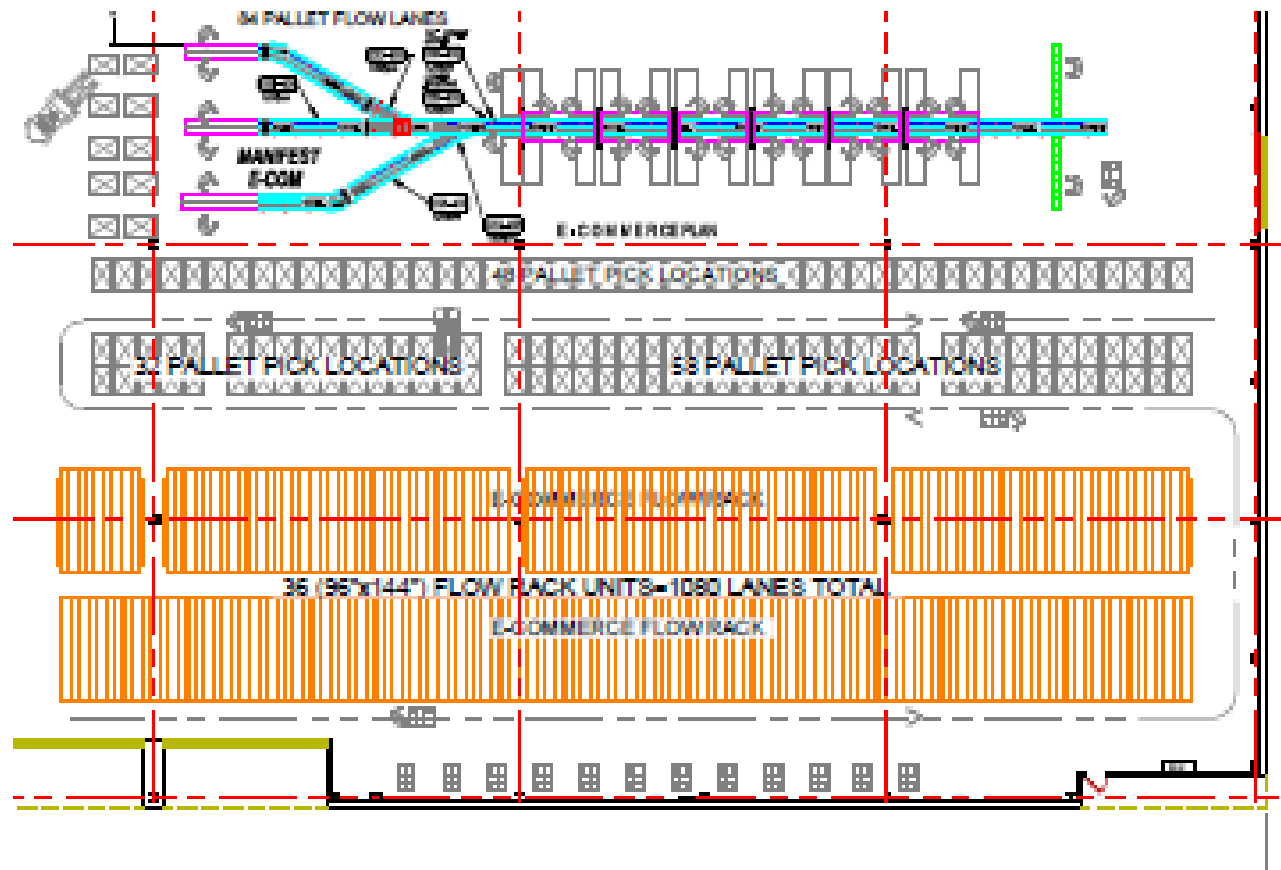
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Results

- Shared Inventory
- Automation based on ROI
- Automation based on current volume, add when needed
- Eliminated overtime
- Increased accuracy
- Reduced shipping costs

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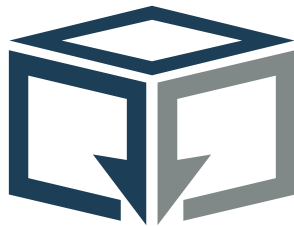
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