

PLANNING AND CONFIGURING WAREHOUSE LAYOUTS AND ORDERPICKING OPERATIONS

2-DAY COURSE OUTLINE

Introduction

- Relevance of “Lean” in the WH/DC
- Cost and Customer Service Implications
- Warehousing – Both Science and Art

Data Gathering - What is Important

- Transactions Characteristics
- Order Characteristics
- Item/Quantity Charting
- Item/Quantity Analysis
- Existing Facility Characteristics
- Material Supply Concepts
- Transactions
- Physical Characteristics
- Non-Physical Characteristics
- Routings
- Special Storage
- Support Services
- Timing

Analysis

- Inventory Profile
- Order Characteristics
- Transaction Rates
- ABC Classifications
- Work Sampling
- Cube Utilization
- Transactions/Inventory (T/I) Ratios
- Distance/Intensity (D/I) Charts
- Real Time Versus Batching

Methods Improvements

- Database Structure
- Order Picking Stratification
- Forward/Reserve Picking
- Stock Locator System
- Zone/Batch/Wave Picking
- Order Picking Steps
- Travel Economics
- Bar Coding
- Radio Frequency Input/Output

Automation Considerations

- Quantity/Size and Transaction Rates
- Space Utilization
- Order Patterns
- Labor Issues
- Environmental Issues
- Cost Issues

Equipment Considerations

- Dispatching
- Accumulation
- Semi-automatic Picking
- Automatic Picking
- High-density Storage

Typical Equipment Systems

- Sorting Systems
- Lift Trucks-Types
- Storage/Retrieval Machines
- Binnable Storage
- Storage Rack Variations
- Mechanized Bulk
- Roll-Through Picking
- P&D Stations
- Special Equipment
- Equipment Costs

People Issues

- Pick Standards
- Teaming Issues

Balancing Order Picking Operations

- Example Layouts

Configuration/Layout

- Basic Parameters
- Modular Storage Elements
- System Selection Procedure
- Storage Aids
- JIT/Lean Considerations
- Traditional Systems
- Narrow Aisle Systems
- Very Narrow Aisle Systems
- Bulk Storage
- Order Picking Methods
- Warehouse Construction/Cost Features

Computer Aids

- Simulation
- Travel Economics
- Equipment Utilization

Cost Analyses

- Development of Cost Equations
- Typical Warehouse Cost Factors
- Various Equipment/Space Tradeoffs

Weighted Factor Evaluation