



“How Changing Supply Chains Impact Your Dock Areas”

**Supply Chain & Logistics Conference
Georgia International Convention Center
Atlanta, Georgia
September 10, 2002 1:15 – 2:15 PM**

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Principal
*Freese & Associates, Inc.***

Objective

This session will examine the evolution of the Supply Chain and the subsequent impact on dock requirements. It will address how to minimize costs, maximize capacity of your dock area, and answer the questions of docks and doors, how many, what type, and where to locate them.

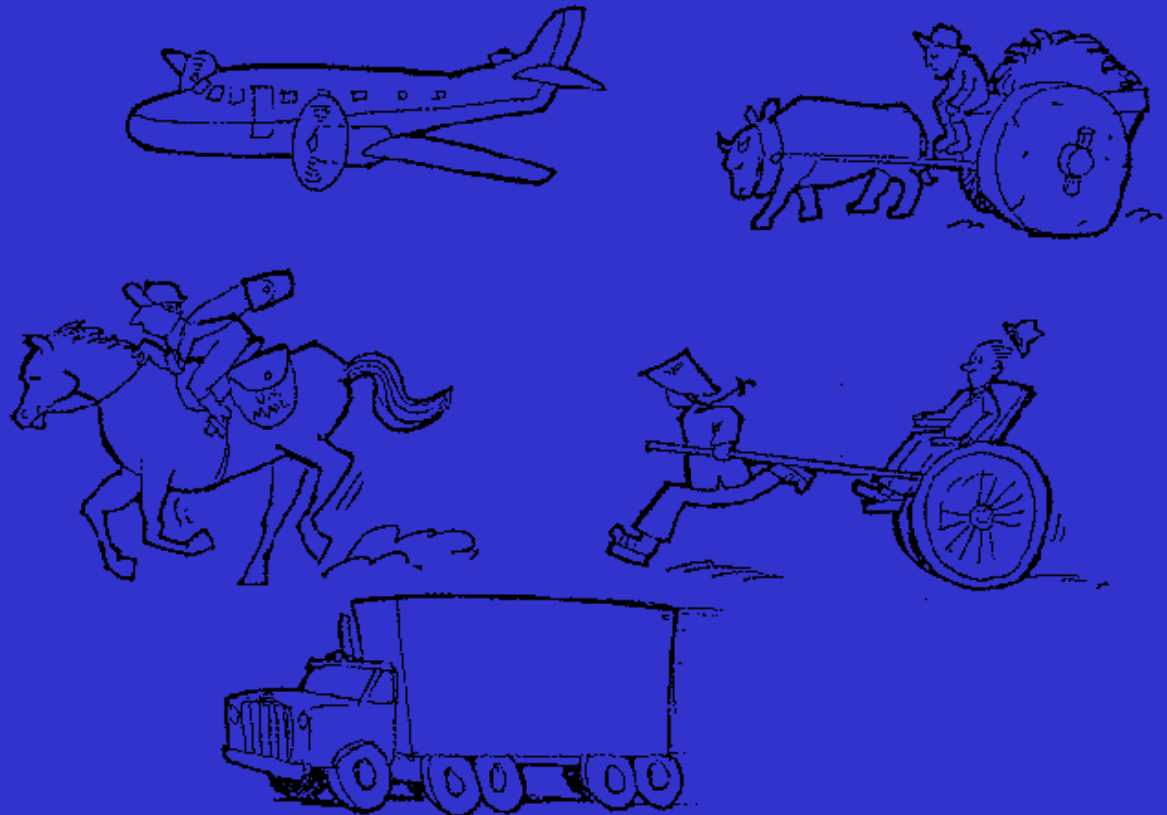
Outline of Agenda

- How things are changing
- Customization, what you are
- The impact of the internet
- Design step

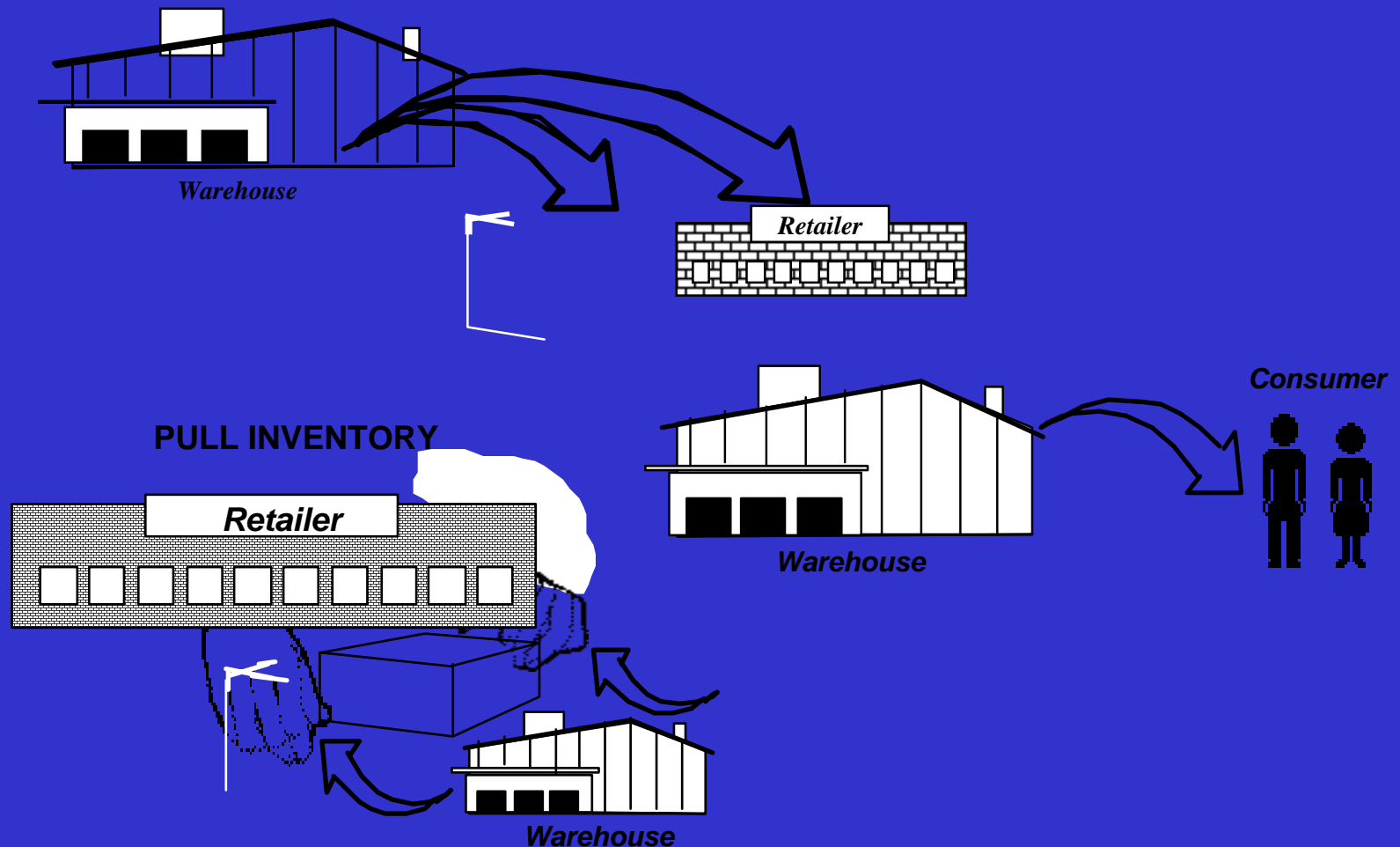
Questions to be Addressed

- What should or shouldn't be in the dock area?
- What safety issues need to be considered?
- Is there an ideal dock productivity rate?
- How many docks do you really need?
- Where should they be located?
- What type of dock is best?
- How large should that staging area be?
- What material handling equipment is best?
- What dock improvement opportunities exist?

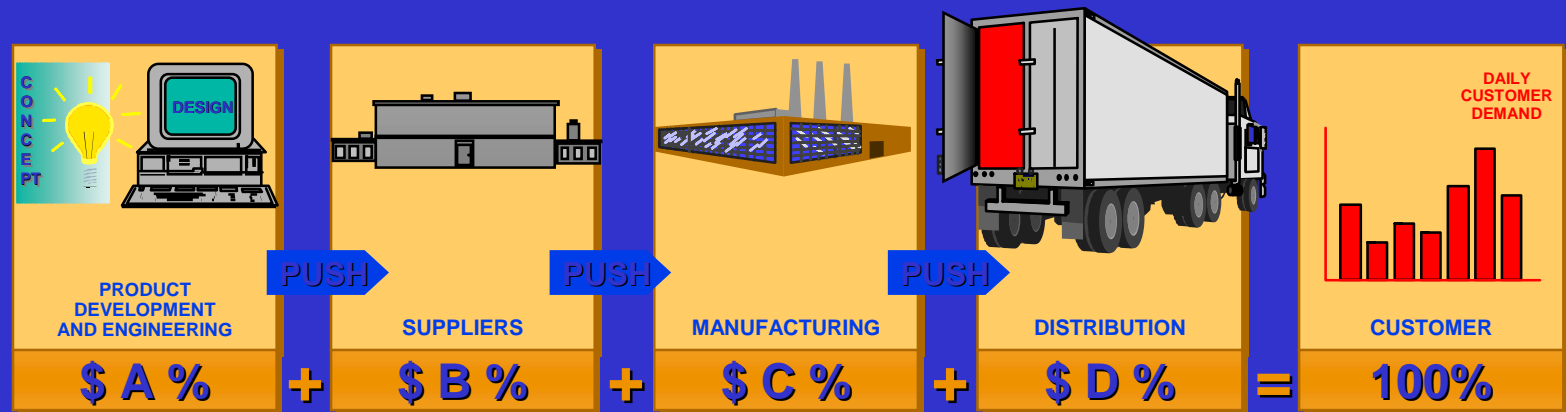
Logistics is Changing



The Flow of Goods is Changing



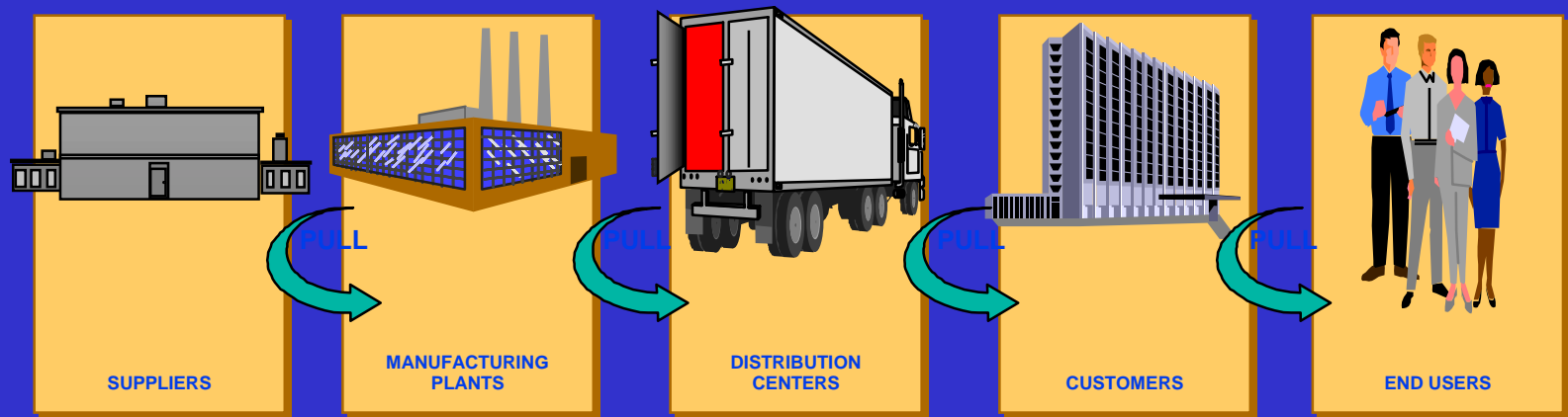
An Outdated Business Proposition



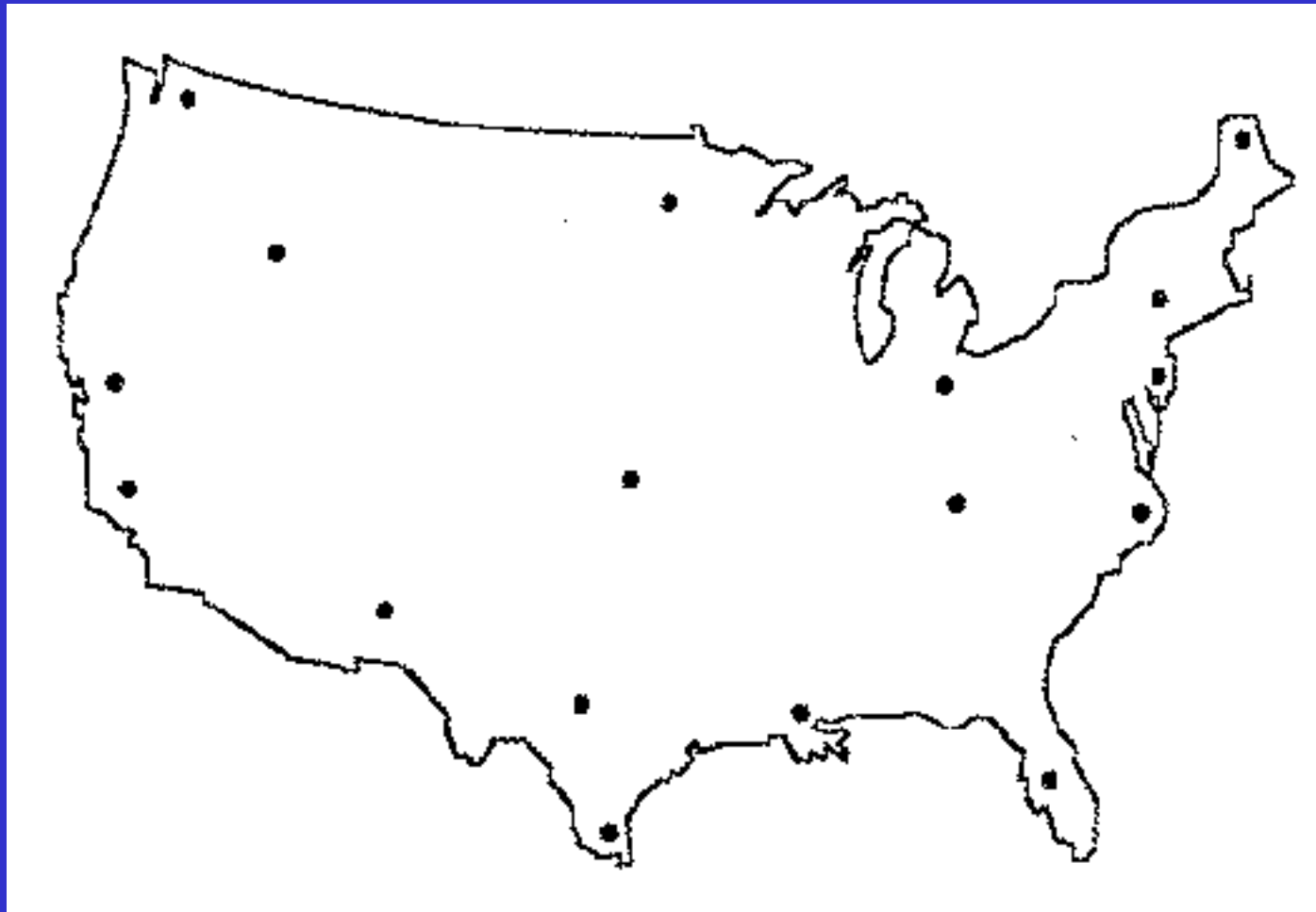
- Common business practices “FORCED” their products down the customer channels. Each step in the process added increasing costs and elongated the responsiveness to demand. Companies became distant from their customers.

Today's Business Proposition

- As customers expand worldwide, the supply chain requirements and capabilities will expand. Lead times and working capital needs increase, while more costs are embedded into the enterprise.
- Best practice companies are looking beyond their own four walls to identify opportunities to improve business performance throughout the entire value chain. This “customer to customer, cash to cash” focus results in higher customer service, asset performance, and cost improvements.

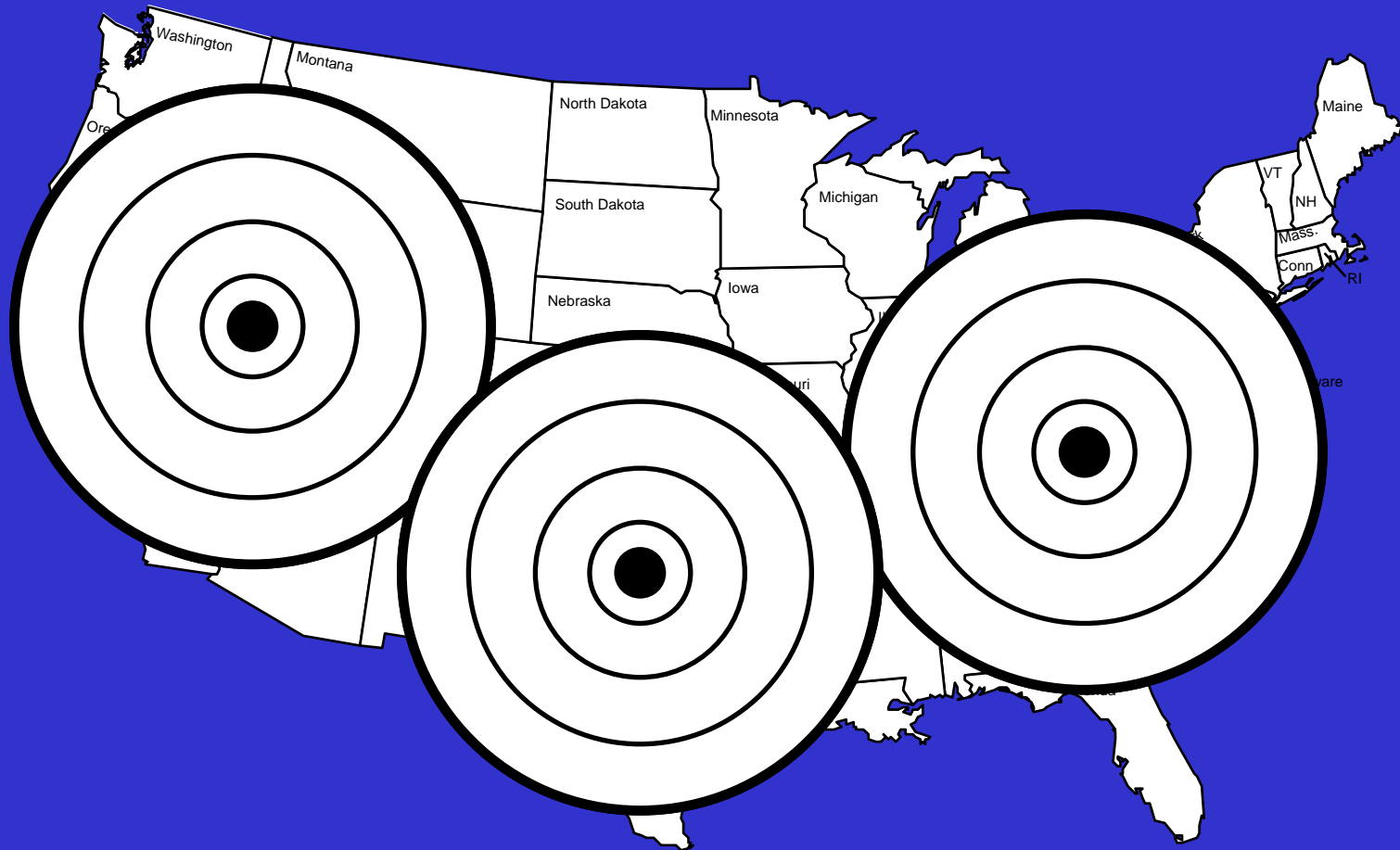


Logistics Networks are Changing



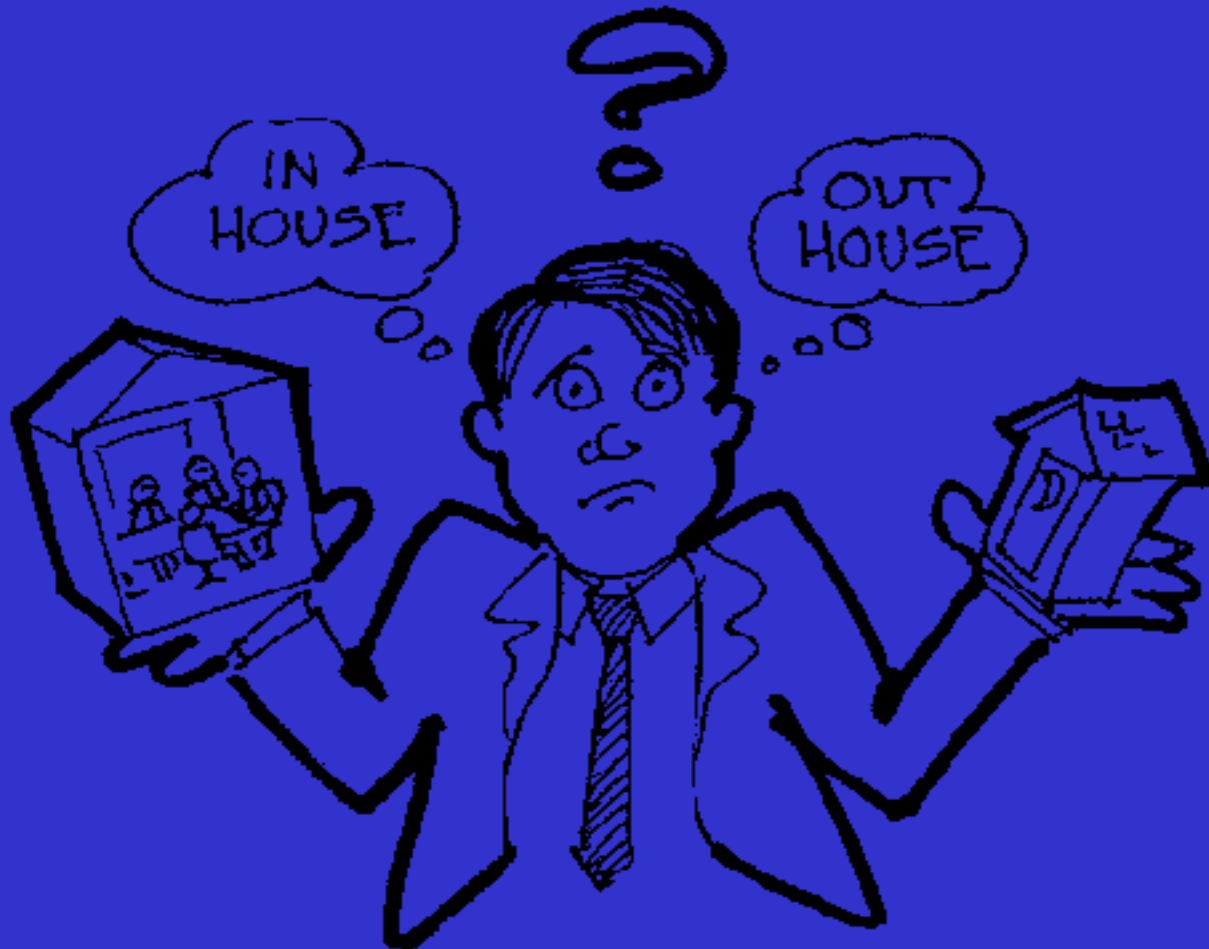
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Many or Few?



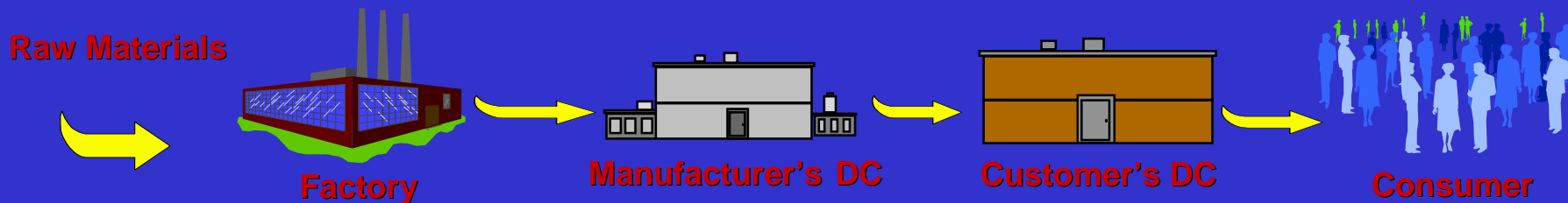
Outsourcing is Changing

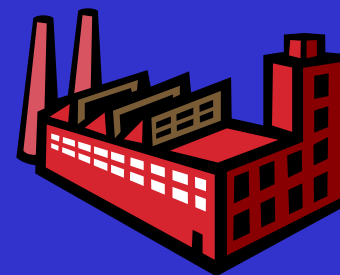
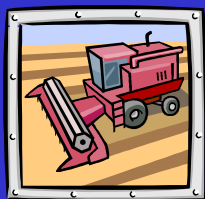
The Use of Out-house vs. In-house is Changing



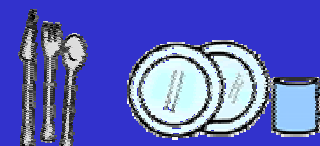
Supply Chain Management

Supply chain management is the integration of business processes from the origin of raw materials through to the end-users in a way that provides products, services and information that add maximum value at the lowest total costs.





TO



TABLE

New Pressures

1. Changing workforce
2. Globalization
3. Organizational alignments
4. Mass Customization
5. Technology
6. Internet Speed & Expectations

Quick, Make the Right Decision!



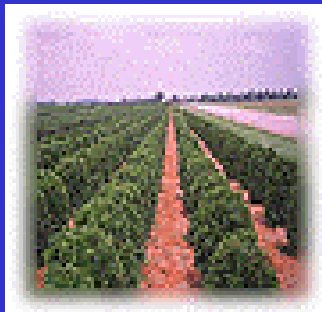
Can we match the competitor's 20% cost cut?



The carrier can't ship on time, who should we call?



The line is down for 8 hours, where do we make this?



How do we ensure vendors deliver critical materials?

How do we pick and ship the order on time?



New Pressures

Business Challenges

- Supply chain requirements are complex, and getting more complex:
 - Scale changes: customers are expanding worldwide.
 - Scope changes: products and services offered are proliferating
 - Working capital needs are increasing, while internal pressures require them to decrease
 - Lead times cannot increase (customers will not accept it)
 - Costs embedded into the enterprise are difficult to identify and extract

New Pressures

Business Challenges

- Those pesky customers are adding to the complexity, when they
 - Inventory less, not buy less
 - Demand and get higher service levels
 - Request special services without added costs
 - Shorten lead times to replenish product
 - Require full integration with providers to reduce the total cost structure

Reverse Logistics

- Return
- Recycle
- Re-use
- Refurbish
- Repair
- Re-manufacture

The Cycle Quickens

The flows are the same,
just the speed has changed



E-Commerce's Front Door

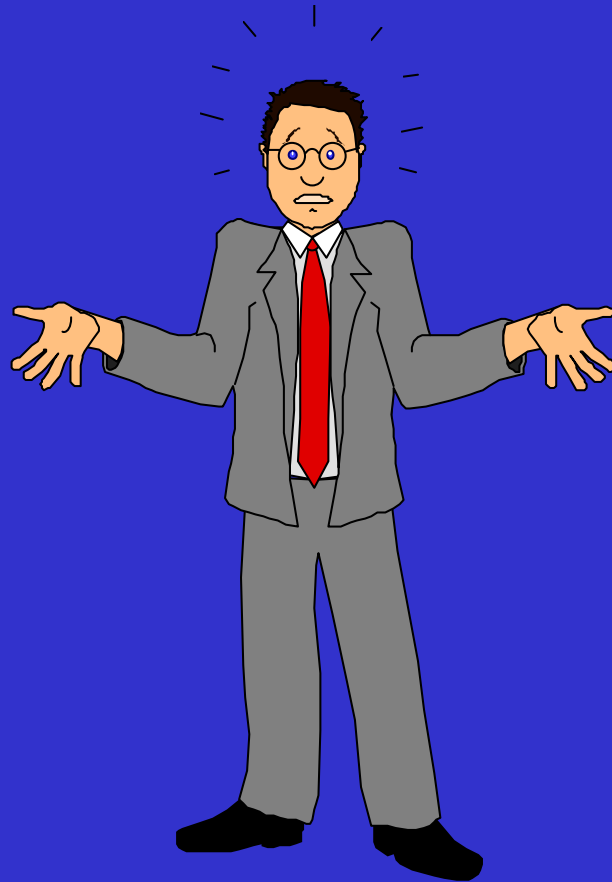
Companies are figuring out how to sell over the internet, but getting the goods to the consumer is another story. As firms get their feet wet with online sales, they are finding out that logistics is a huge barrier to gaining and keeping online customers and the dock is its front door.

Trucks & Trailers Are Changing



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So What All This Got To Do With Docks?



So What All This Got To Do With Docks?

Tomorrows facilities must be:

- Flexible
- Able to handle greater variety
- Able to accommodate more receipts & shipments
- Able to react faster
- Able to handle more value added services

In order to do this tomorrow's facilities must get the optimal capabilities of its "most valuable real estate" the dock area.

Why Dock Layout & Design Is So Important

- To minimize operating costs
- To utilize facility capacity
- To be able to handle receipts
- To be able to handle shipping
- To provide on time service to support today's supply chain demands

Questions

- What should or shouldn't be in the dock area?
- What safety issues need to be considered?
- What is the ideal dock productivity rate?
- How many docks are needed?
- Where should docks be located?
- What type of docks are best?
- How large should staging areas be?
- What material handling equipment is best?
- What dock improvement opportunities exist?

Typical Dock

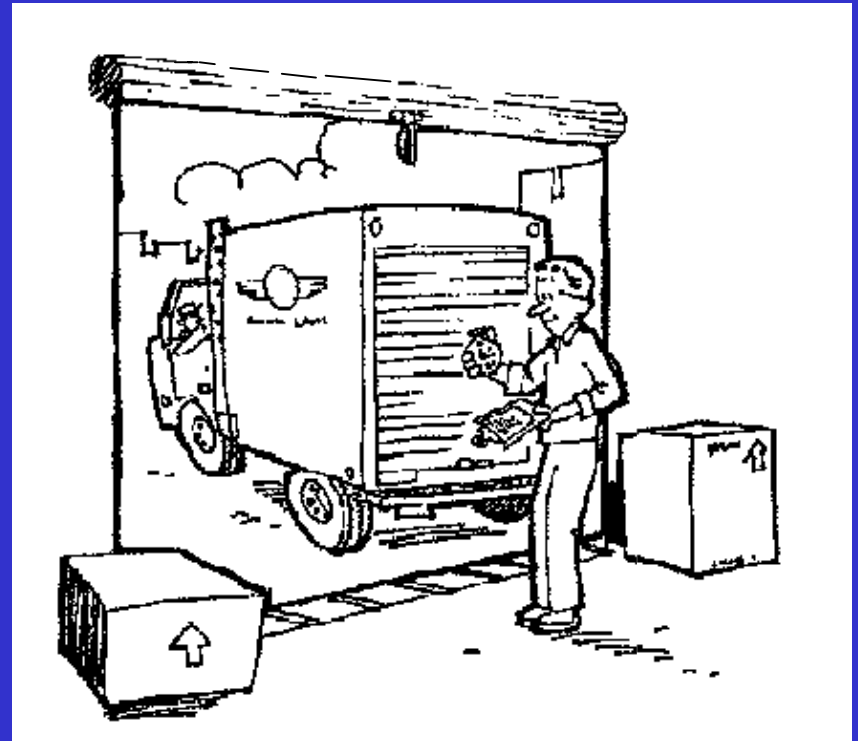


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What To Have

- Trucker's lounge
- Reverse logistics
- Return goods
- Packing areas
- Receiving offices

Speed Requires Open Space



What Not To Have

- Trash
- Pallet storage
- Battery charging
- Packaging materials

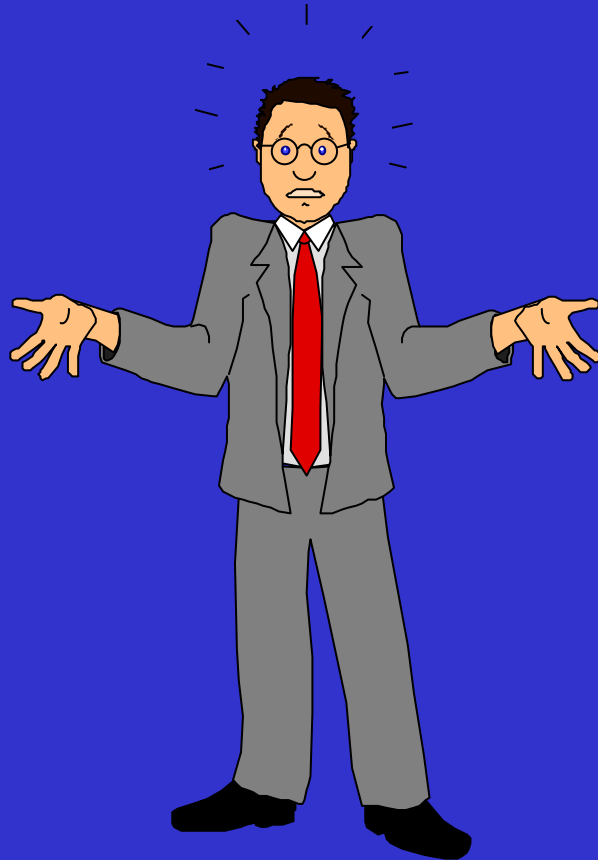
Battery Charging





**“The Time To Address
Those Dock Needs Is
Now.”**

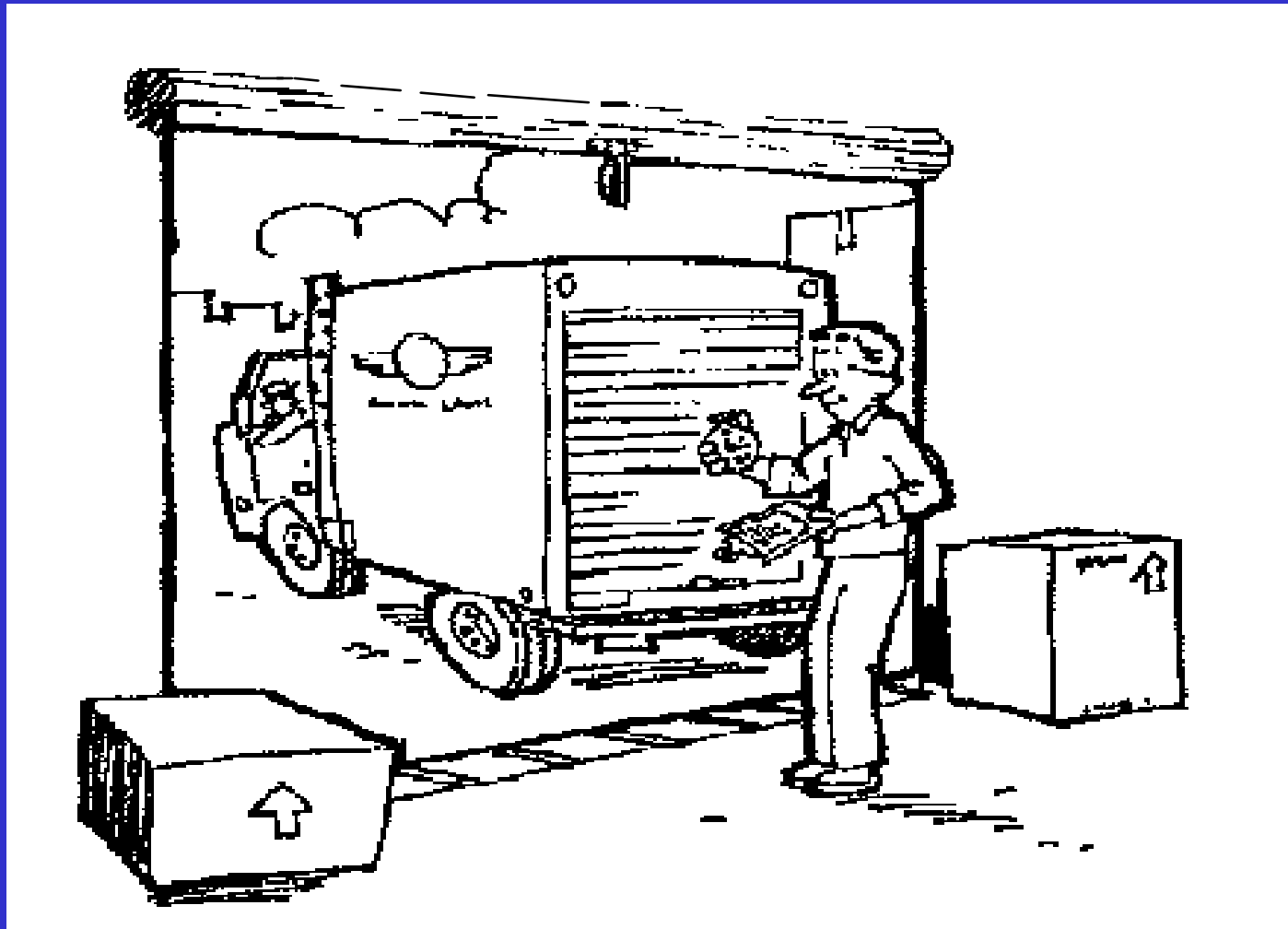
So Then How Do You Proceed?



5 Fundamental Design Factors

- Identify operational requirements
- Map material flows
- Estimate realistic volumes
- Calculate loading docks, staging space and equipment requirements
- Identify and evaluate available alternatives

Dock Expectations



Loading & Unloading



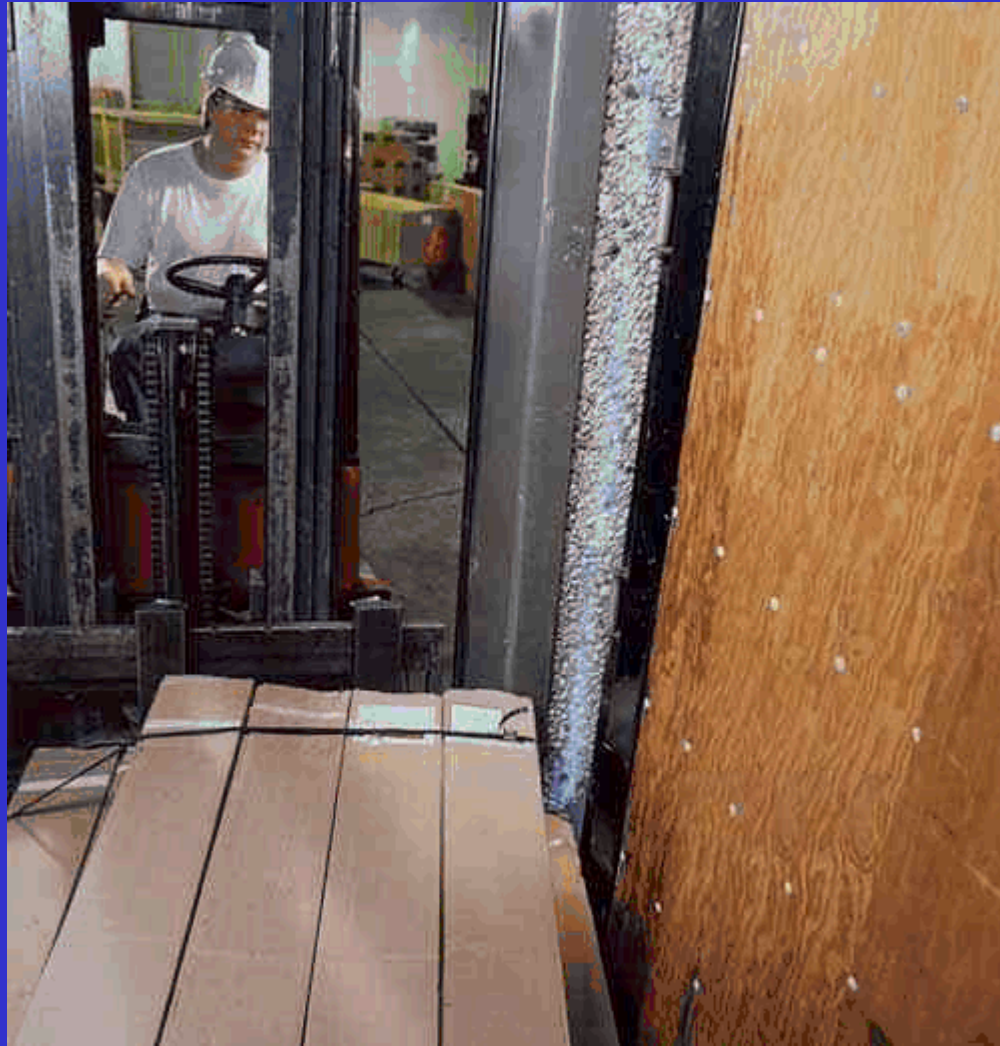
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Load Accessibility



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Dock Safety

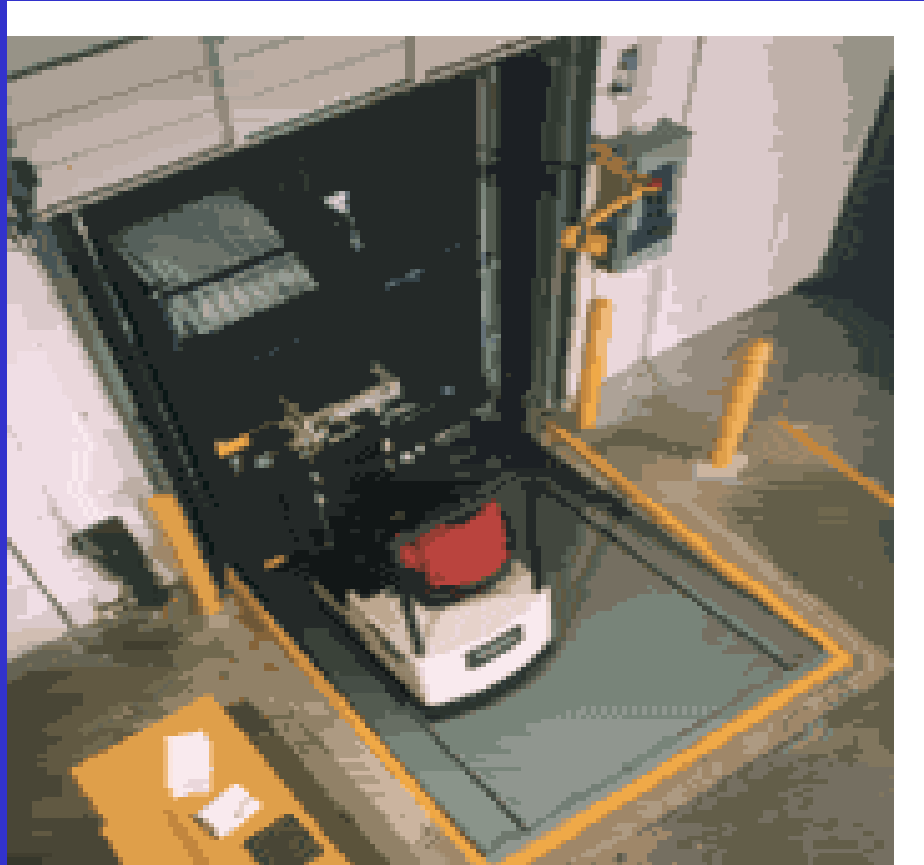


Does Your Dock Area Look Like These?



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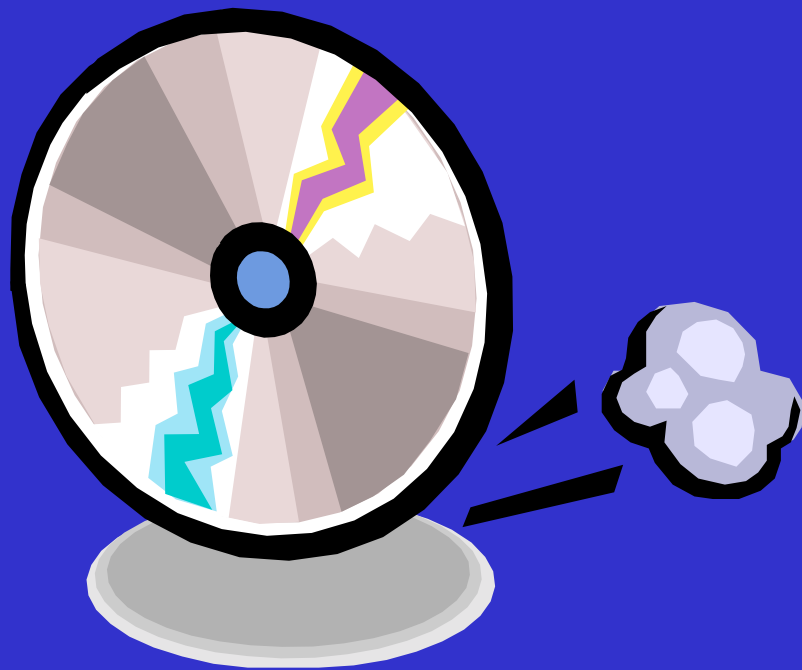
Docks Must Be An Intricate Part of the Entire Operation's Planning & Design



"Lick a Label, Kick a Box It's Just Warehousing"



Supply Chain Management (SCM) Systems



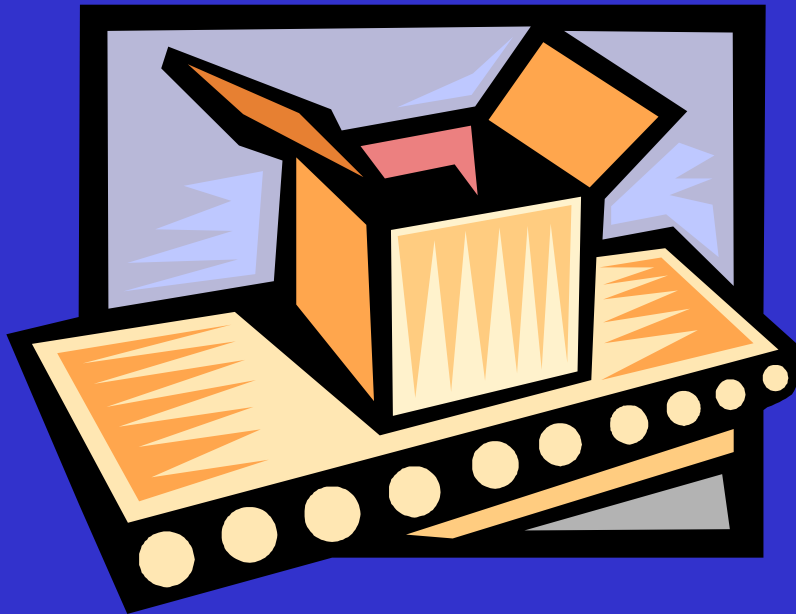
- Planning

- Advanced Planning & Scheduling (APS)
- Enterprise Resource Planning (ERP)
- Supply Chain Planning (SCP)

- Execution

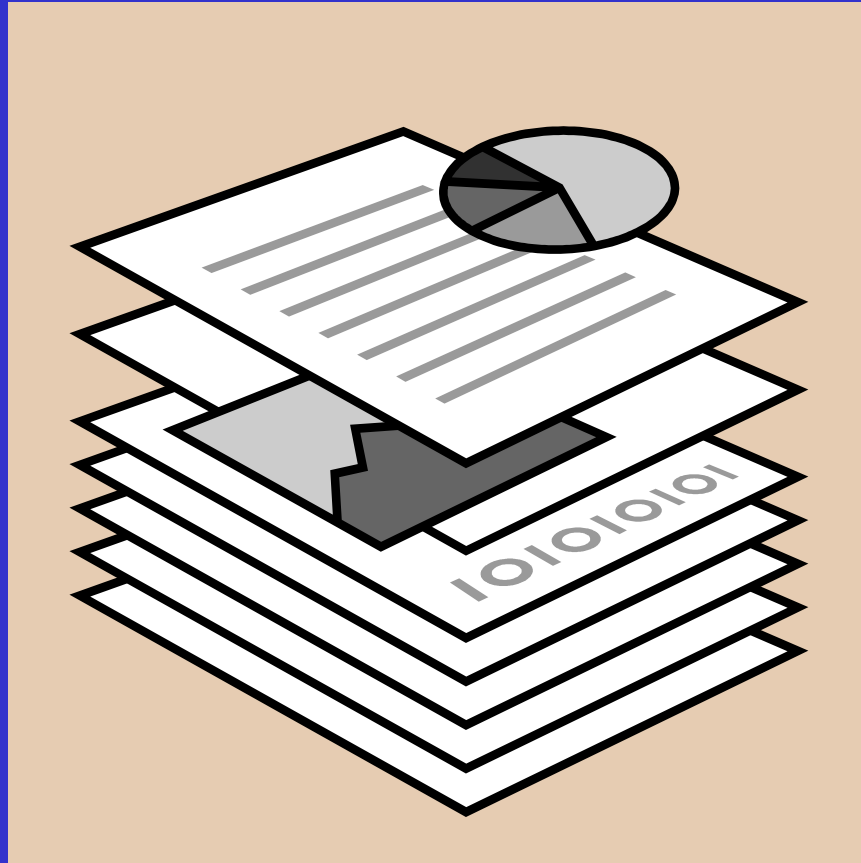
- Warehouse Management Systems (WMS)
- Transportation Management Systems (TMS)
- Order Management Systems (OMS)

WMS



A good warehouse management system decrease cycle times and improves dock operations scheduling and resource planning.

Paperwork



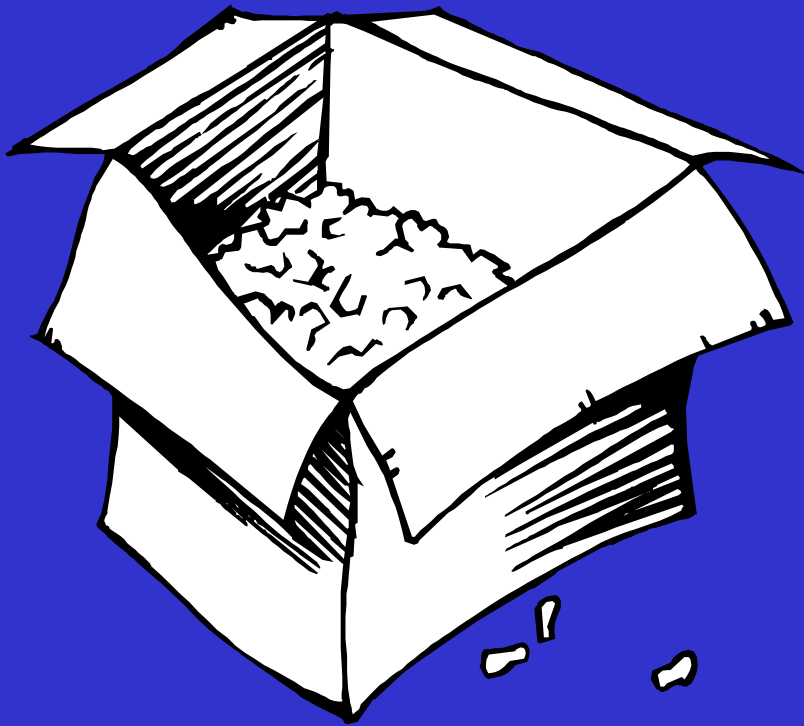
Automatic Data Capture



Bar codes, radio frequency based technologies and other forms of ADC are used to collect data for use within and outside the four walls.

The dock area must take advantage of this technology likewise.

Packaging



Packing stations

Packaging materials

Value add work stations

Conveyors



Conveyors speed the transport of goods at the cost of flexibility.

Sortation is Mandatory



Automated sortation is a must for high-volume individual unit operations.

Not all operations require or will even benefit from automation.

Dock Trucks

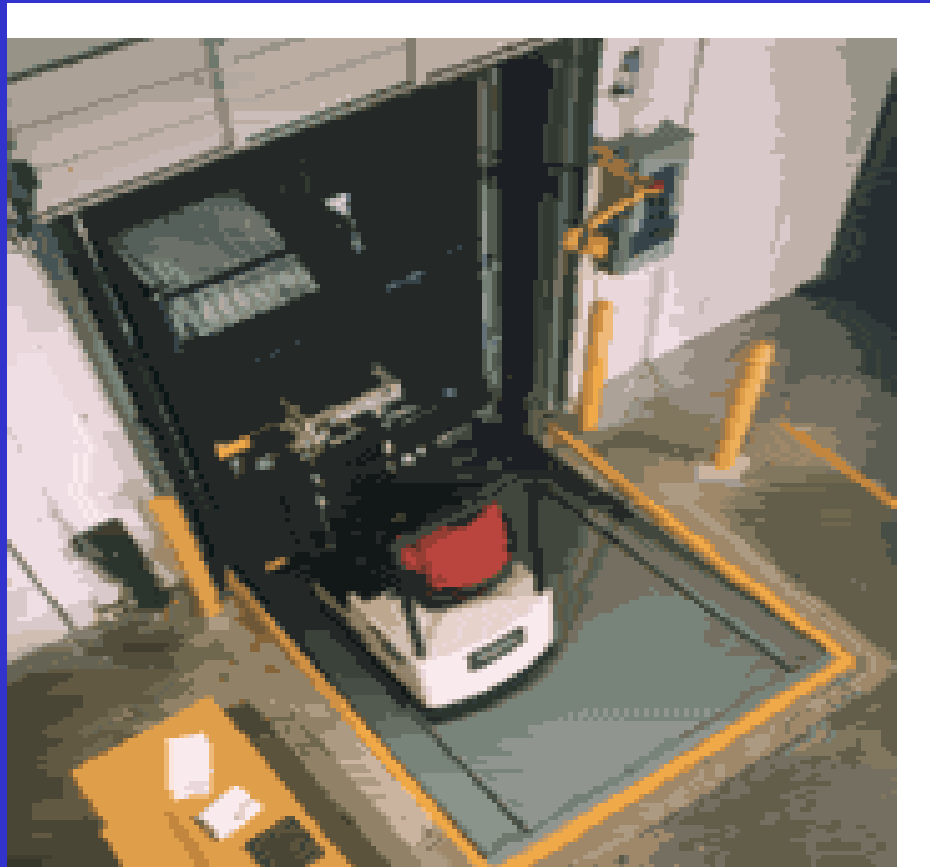


Counter-balanced lift trucks are good general dock utility vehicles.

Electric or internal combustion – each has its pluses and minuses.

Variation of equipment can increase efficiency at the cost of specialization.

Dock Layout & Design



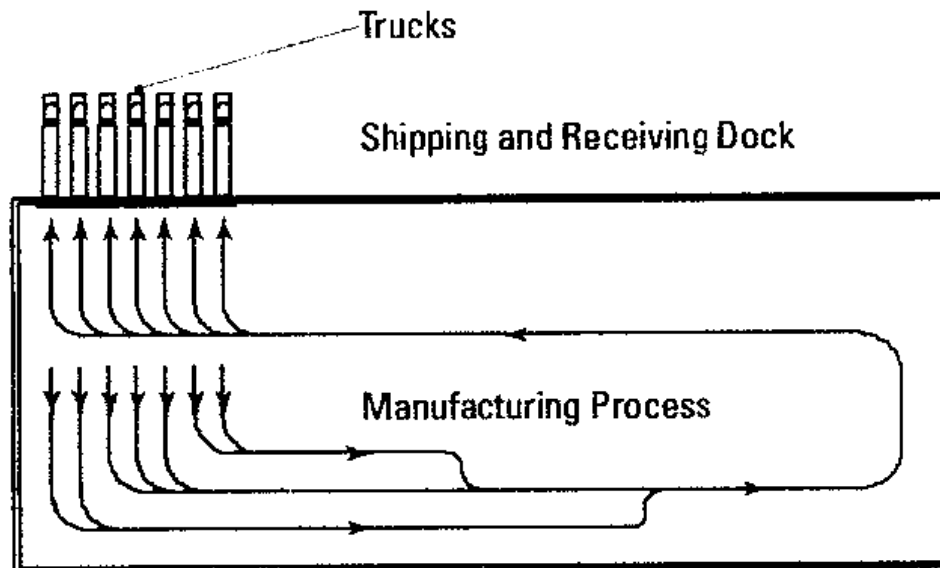
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Staging Area

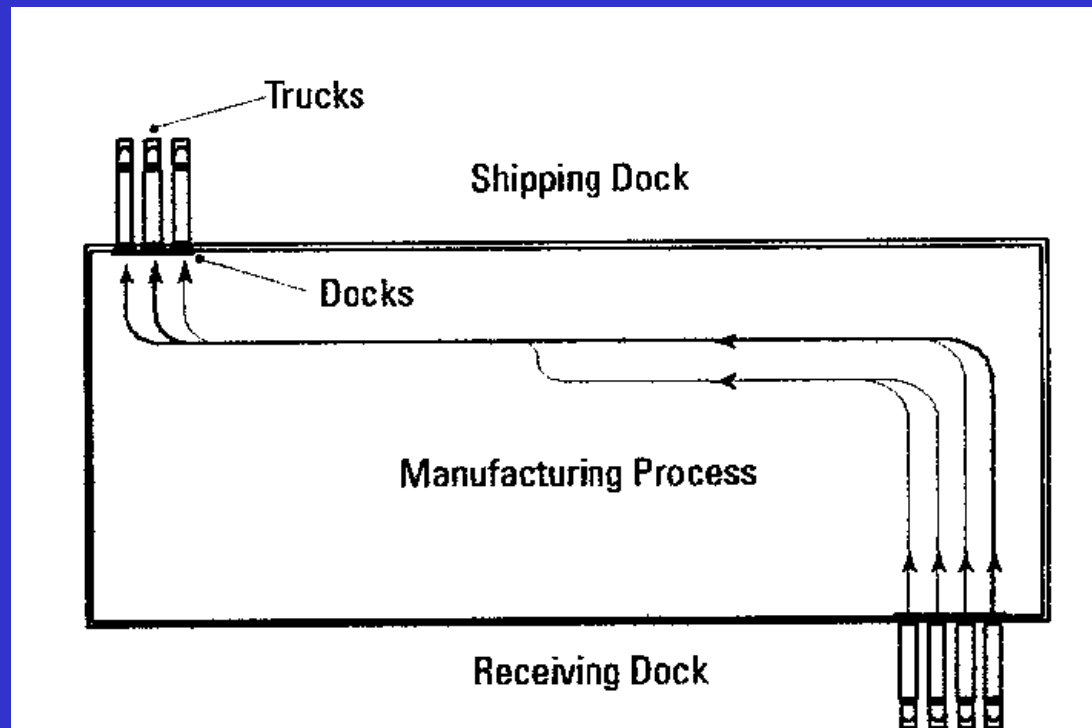


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Dock Location



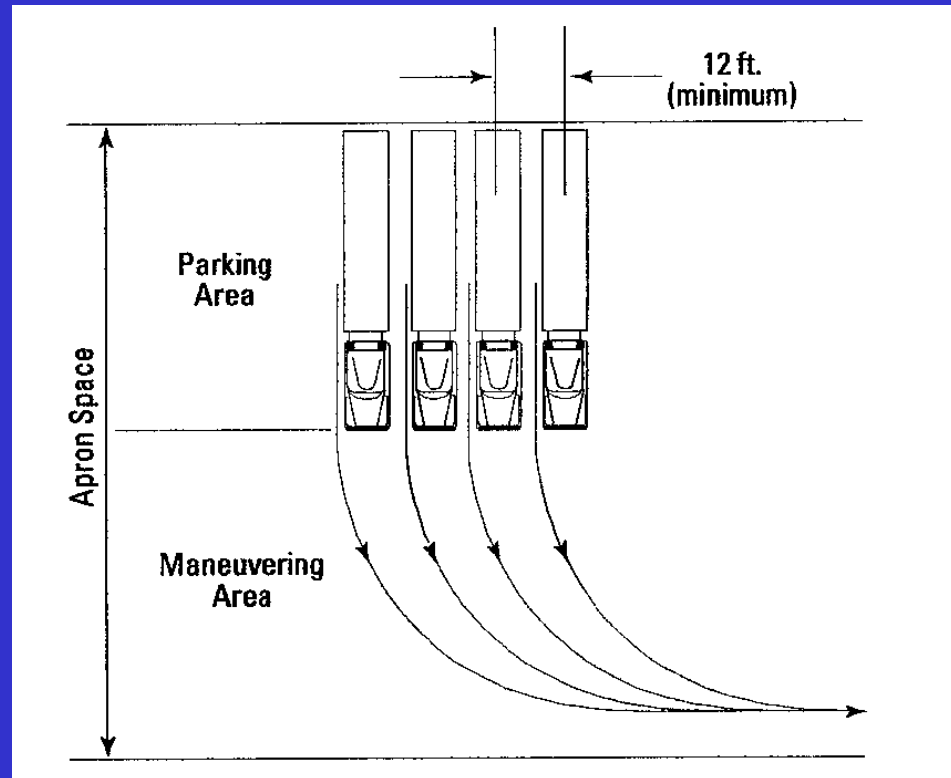
Dock Location



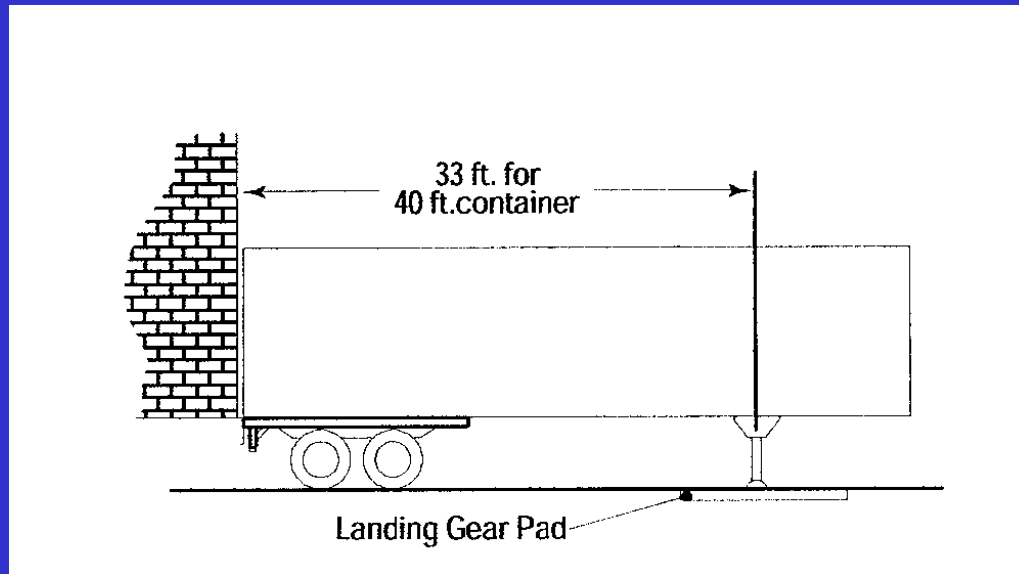
Number of Docks



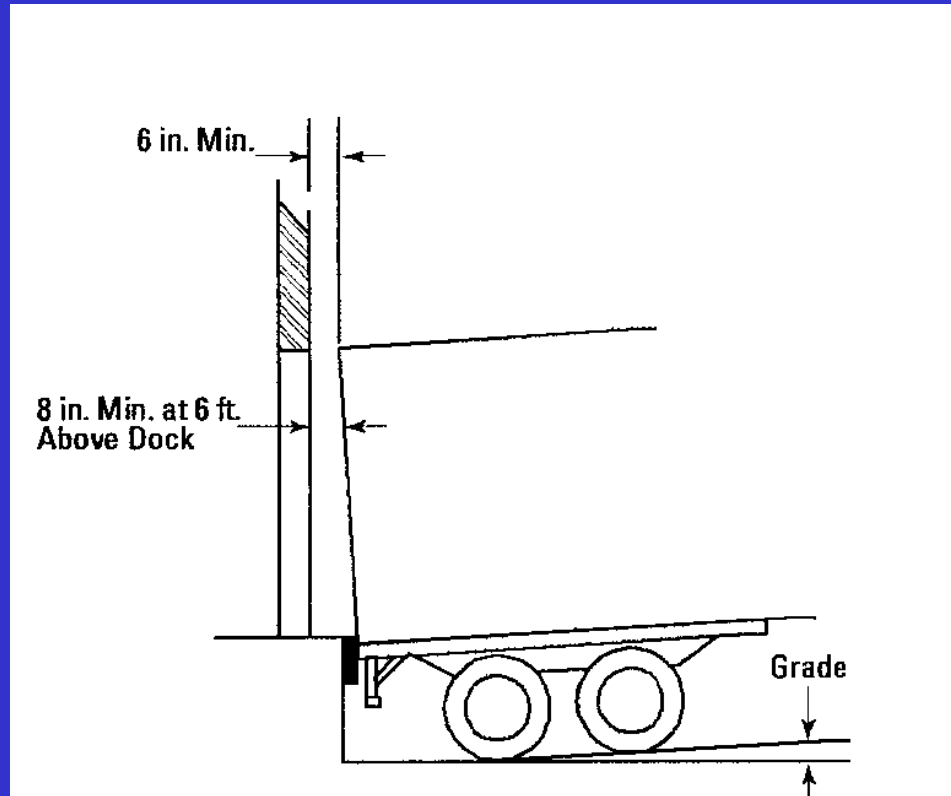
Apron Spacing



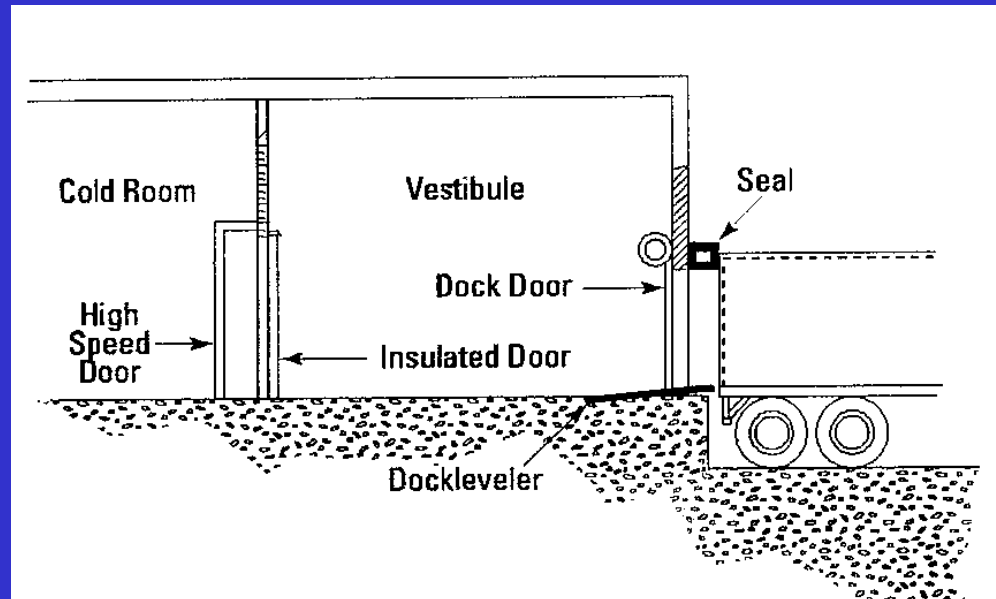
Landing Gear Pad



Dock Grade



Refrigerated Dock

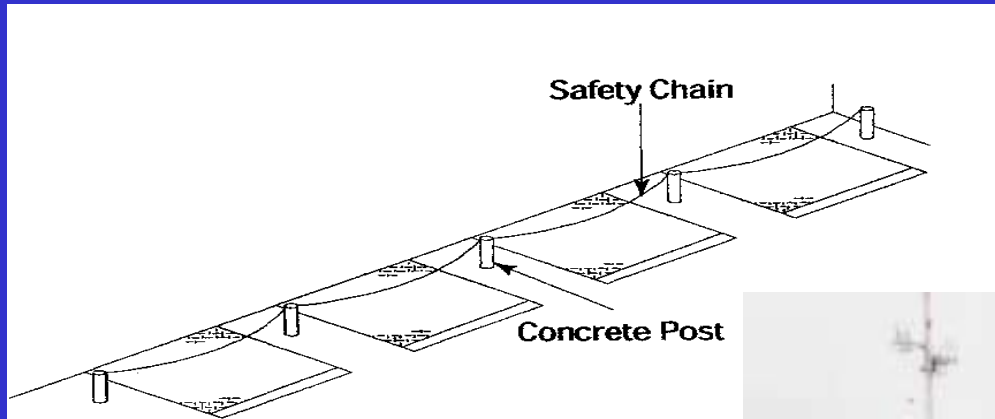


Interior Docks

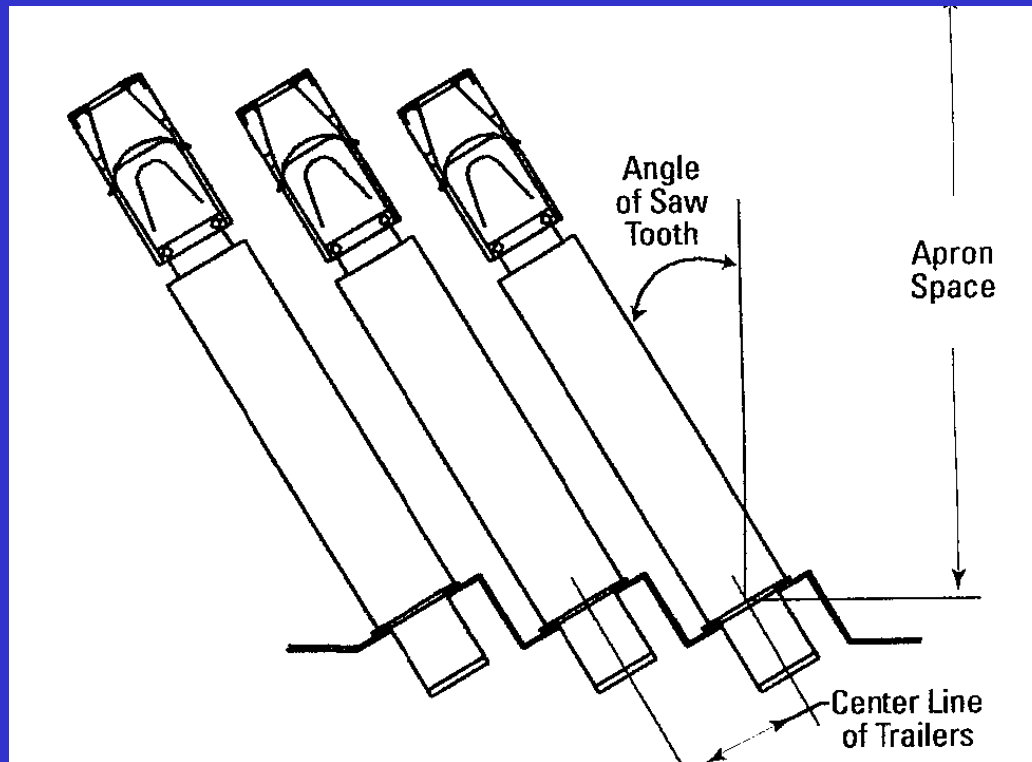


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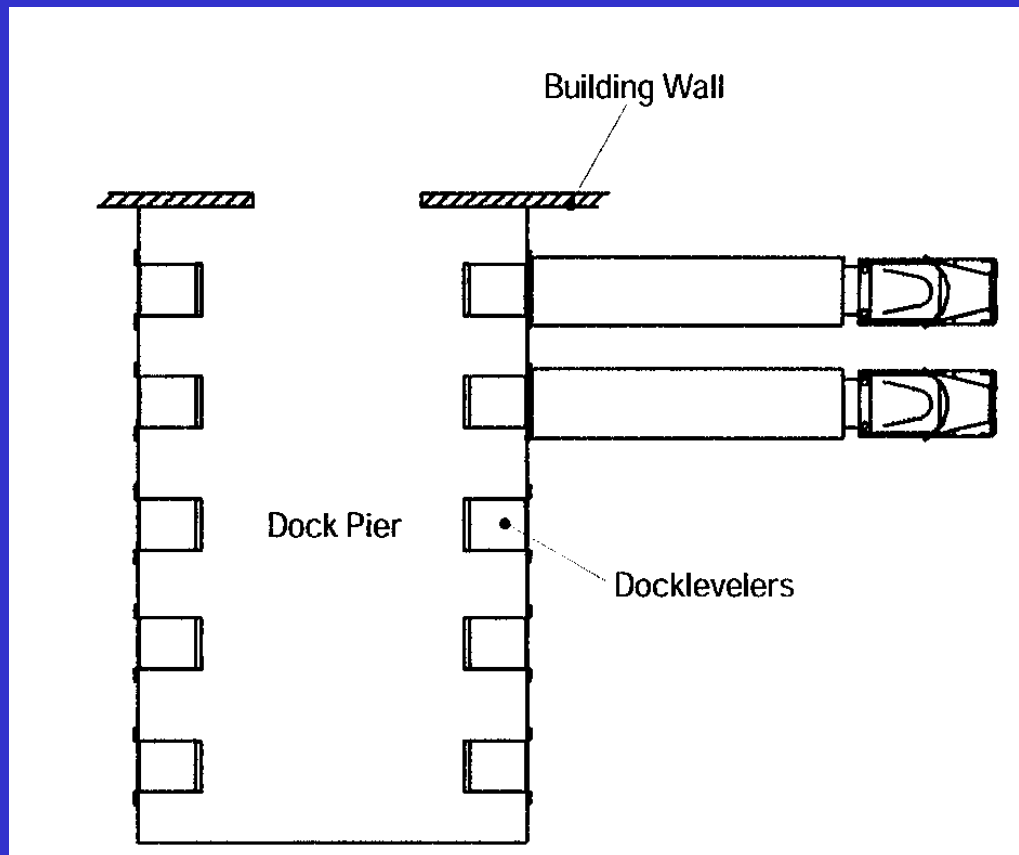
Open Docks



Saw-Tooth Docks



Dock Pier

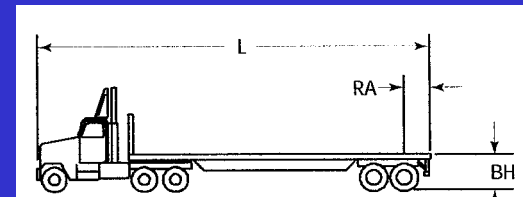
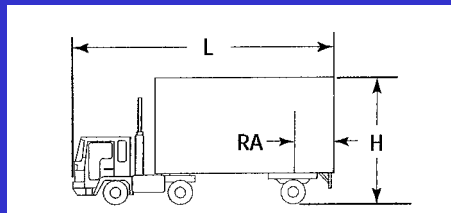
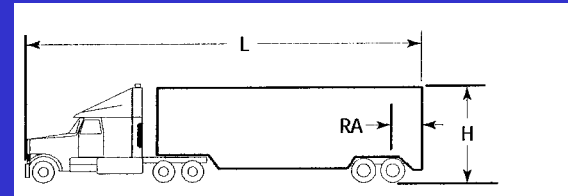
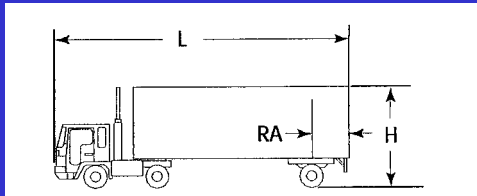
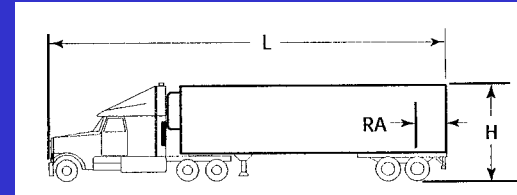
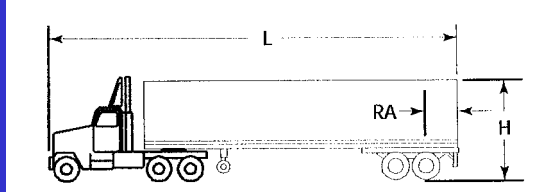


Trucks & Trailers Are Changing

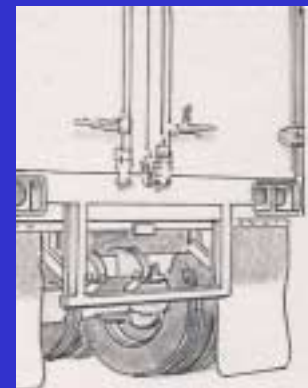
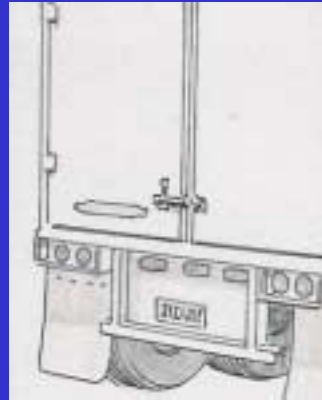
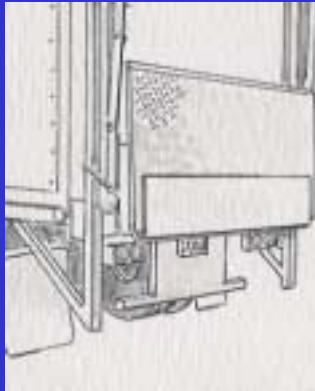


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Truck Sizes & Heights



Truck Door Configurations



Dock Heights

Truck Type	Dock Height
Container	55"
Semi-Trailer	48"
Straight Truck	44"
Refrigerated	52"
Flat Bed	52"

Bay Size

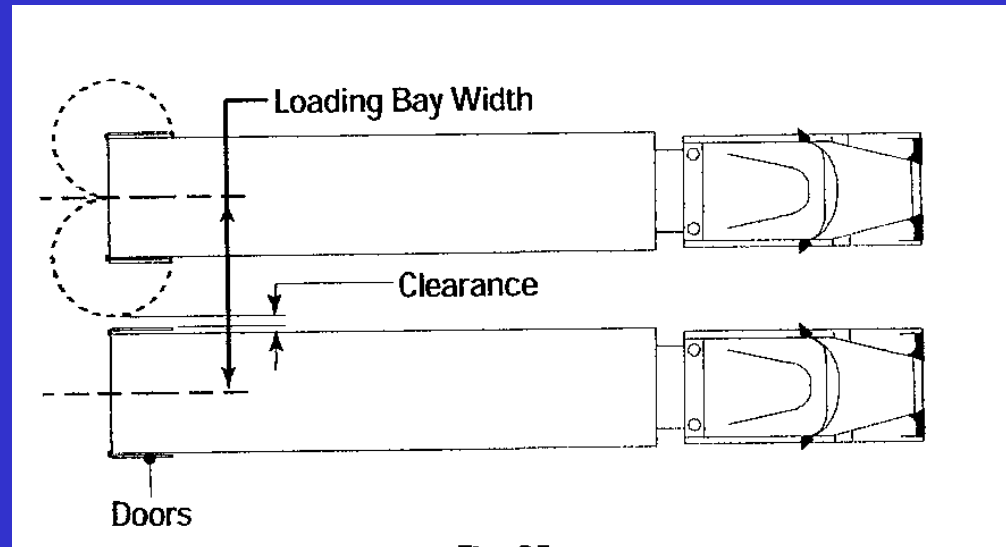
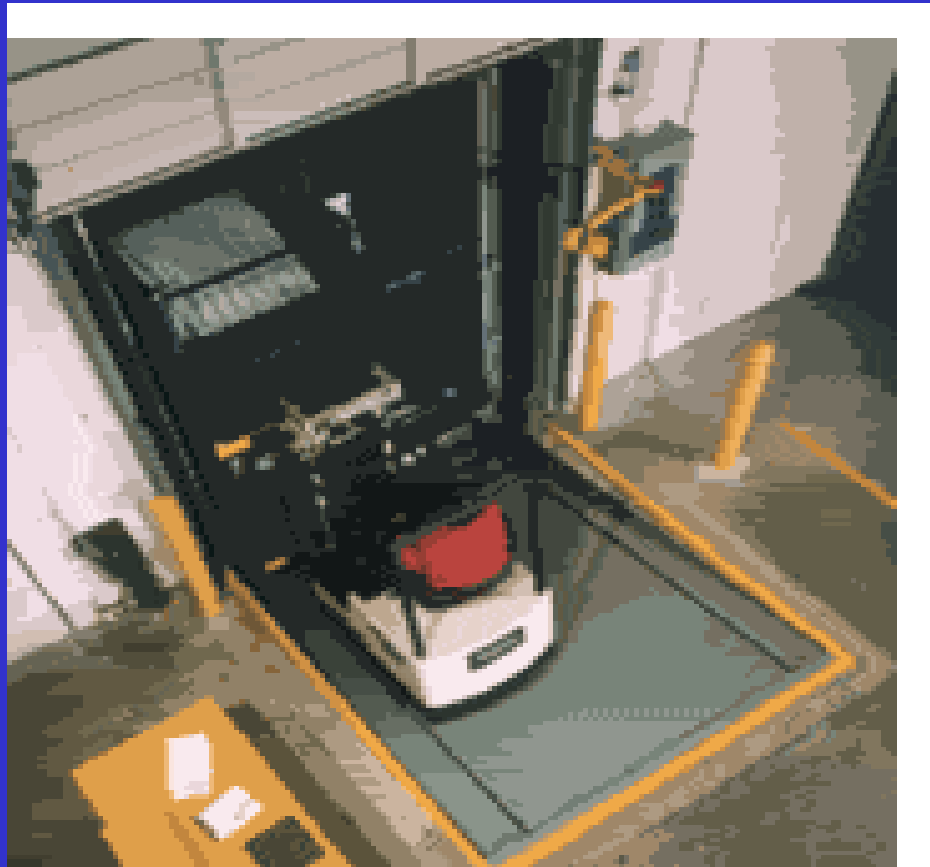


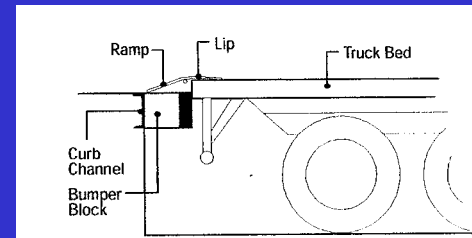
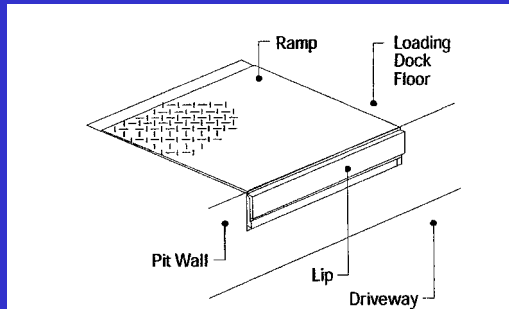
Fig. 25

Dock Material Handling Equipment

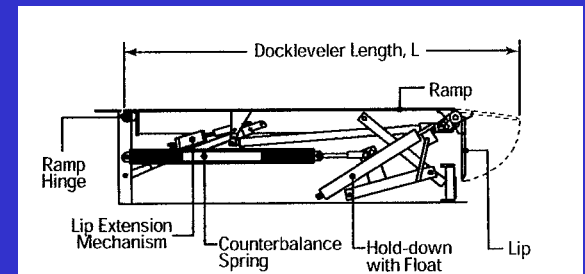
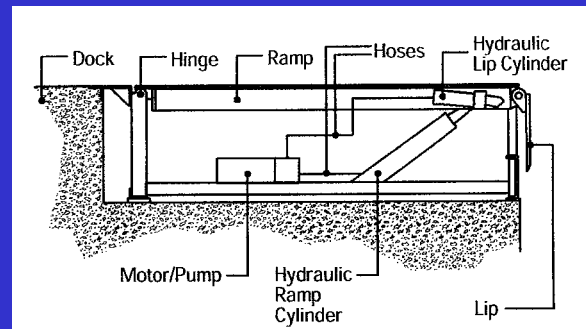
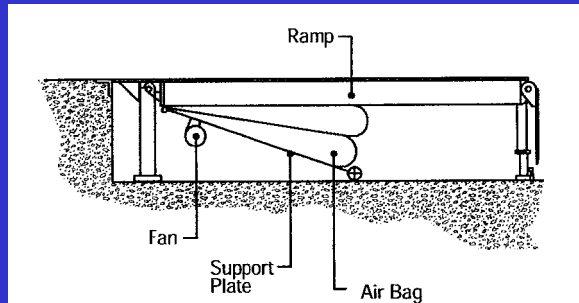


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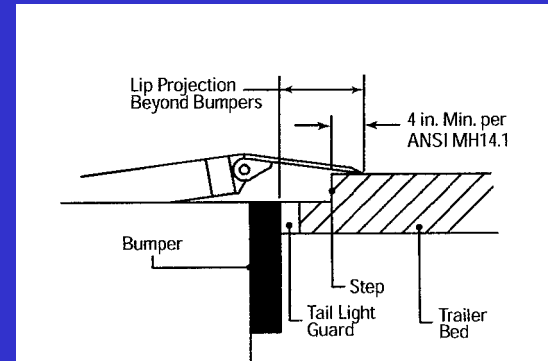
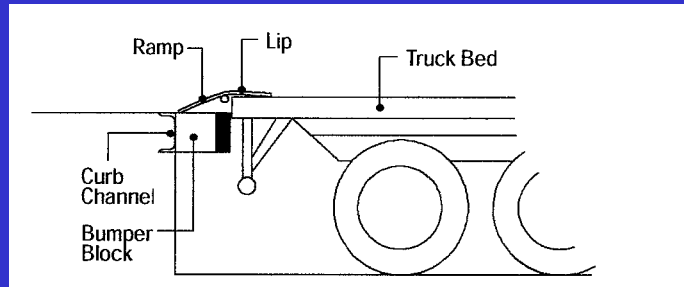
Dock Levelers



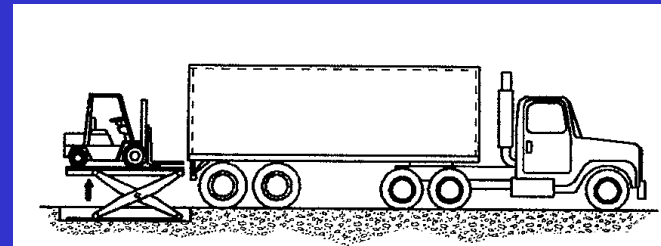
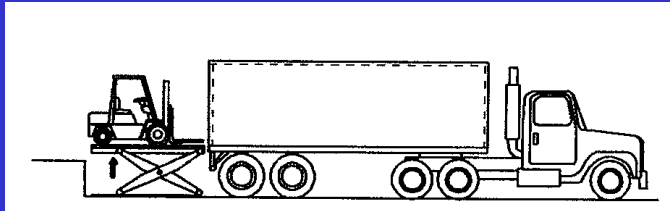
Dock Levelers



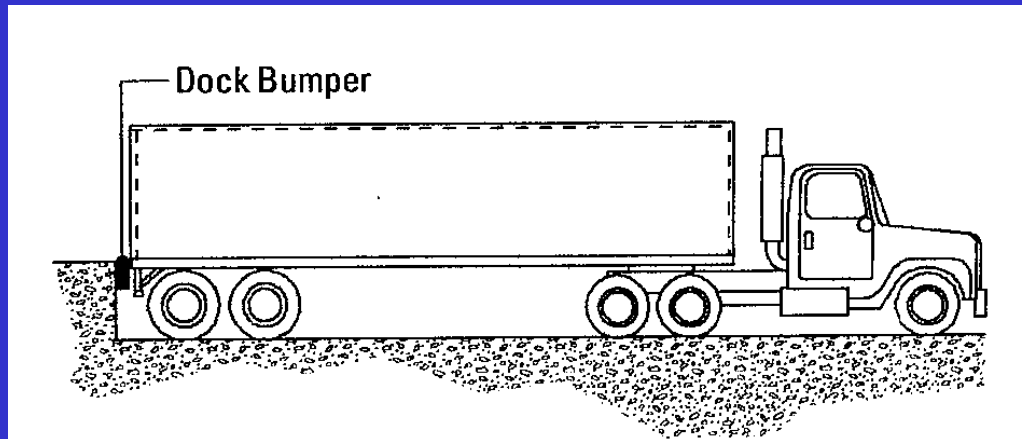
Dock Levelers



Elevating Dock



Dock Bumpers

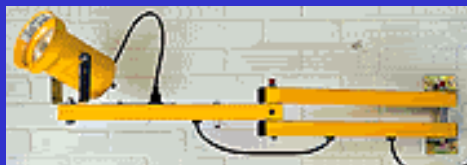


Dock Doors

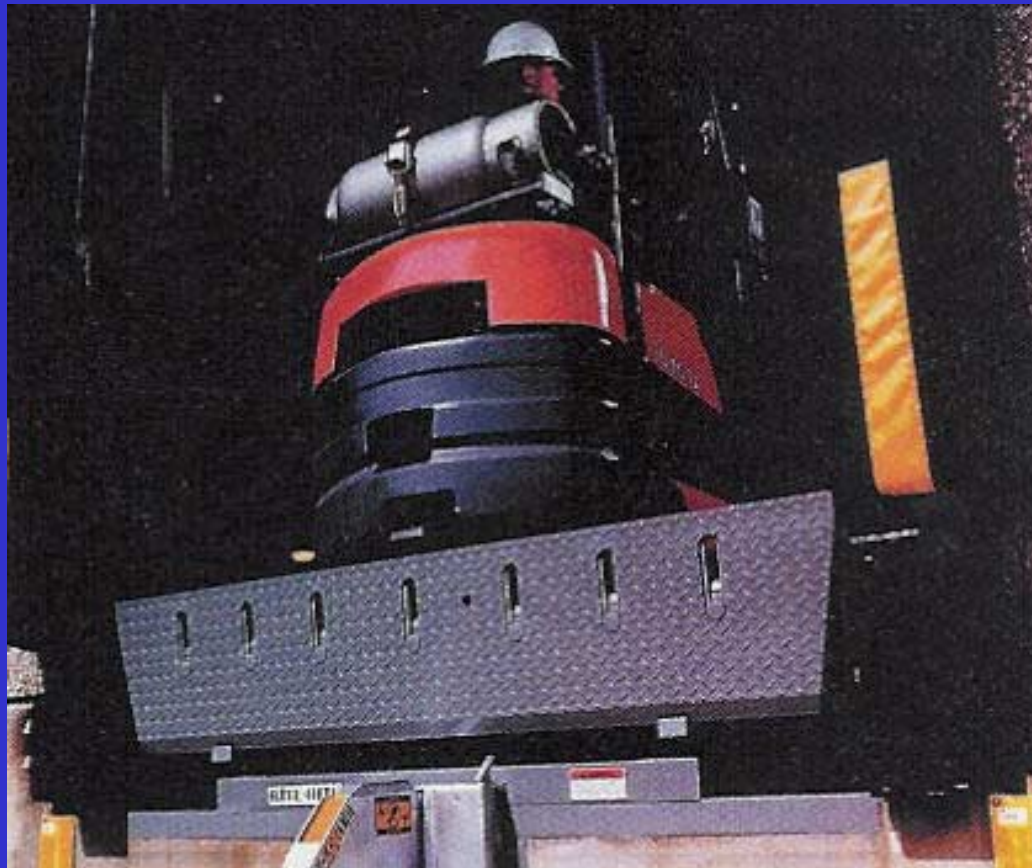


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Dock Lights

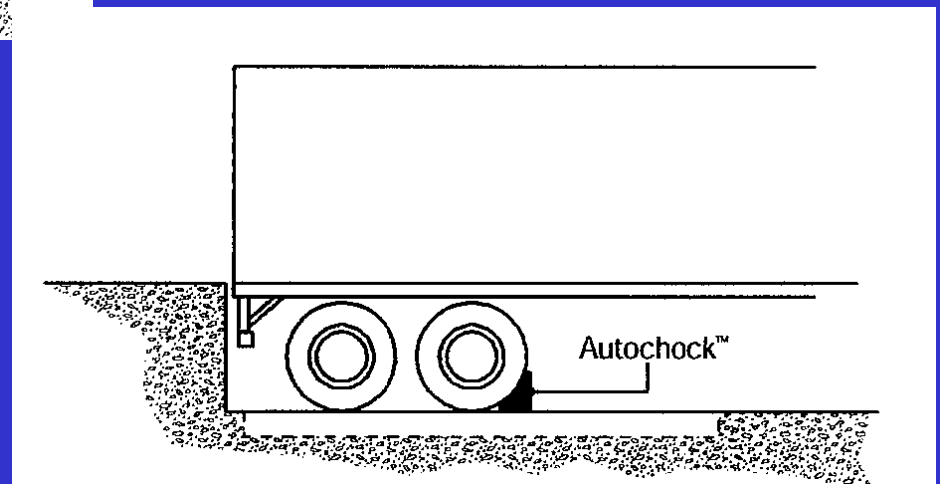
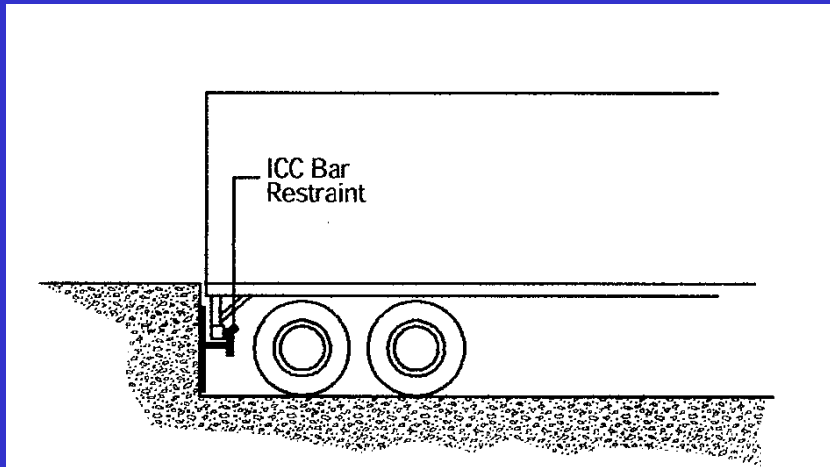


Dock Restraints



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Trailer Restraints

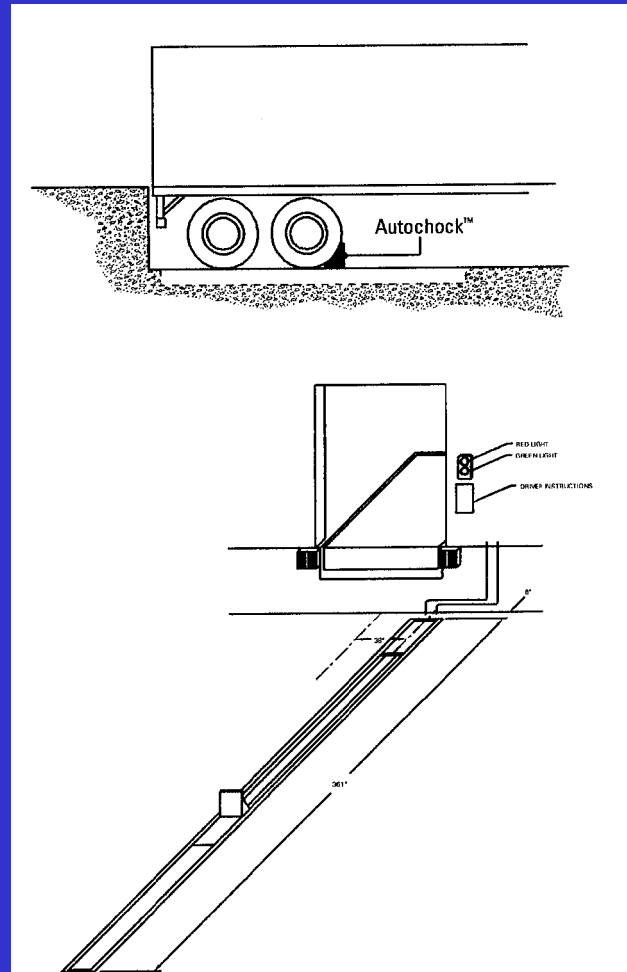


Dock Locks



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Power Wheel Chocks



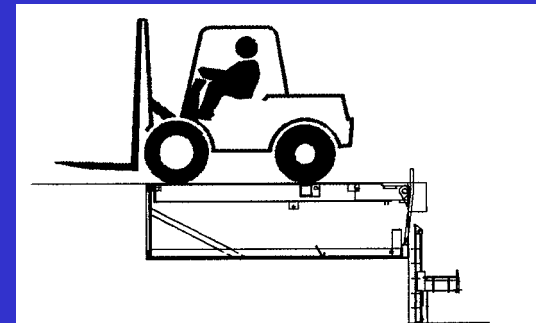
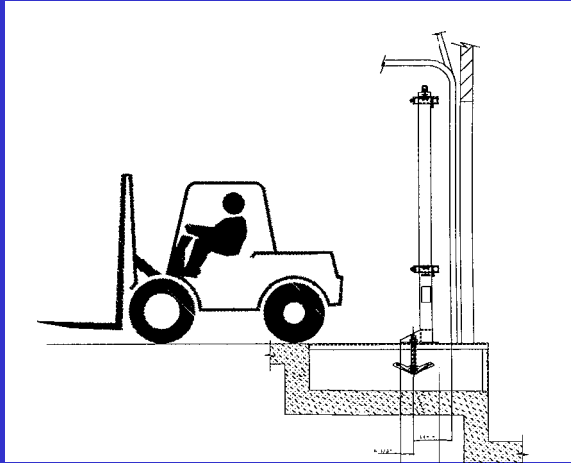
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Power Assisted Dock Chucks

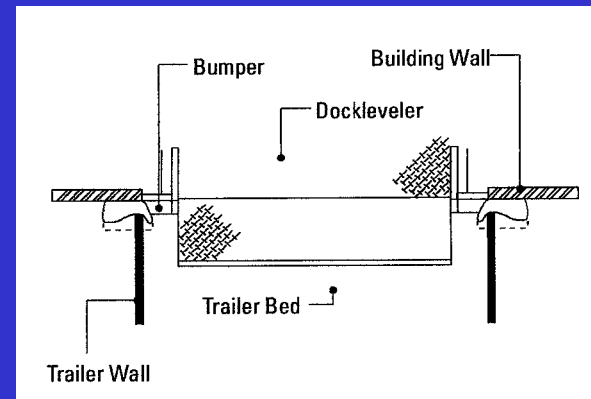
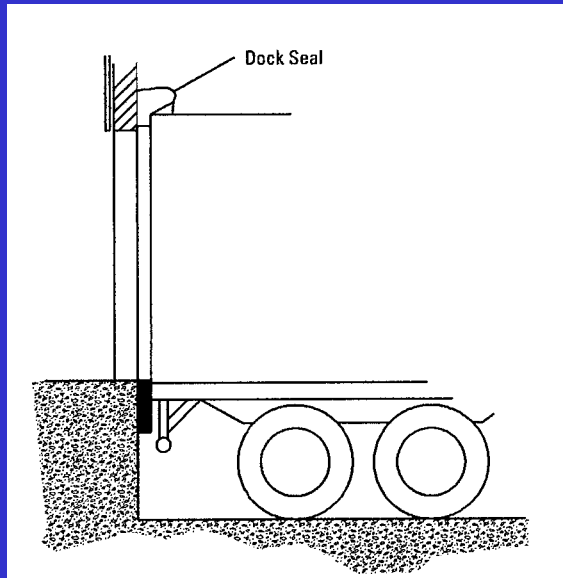


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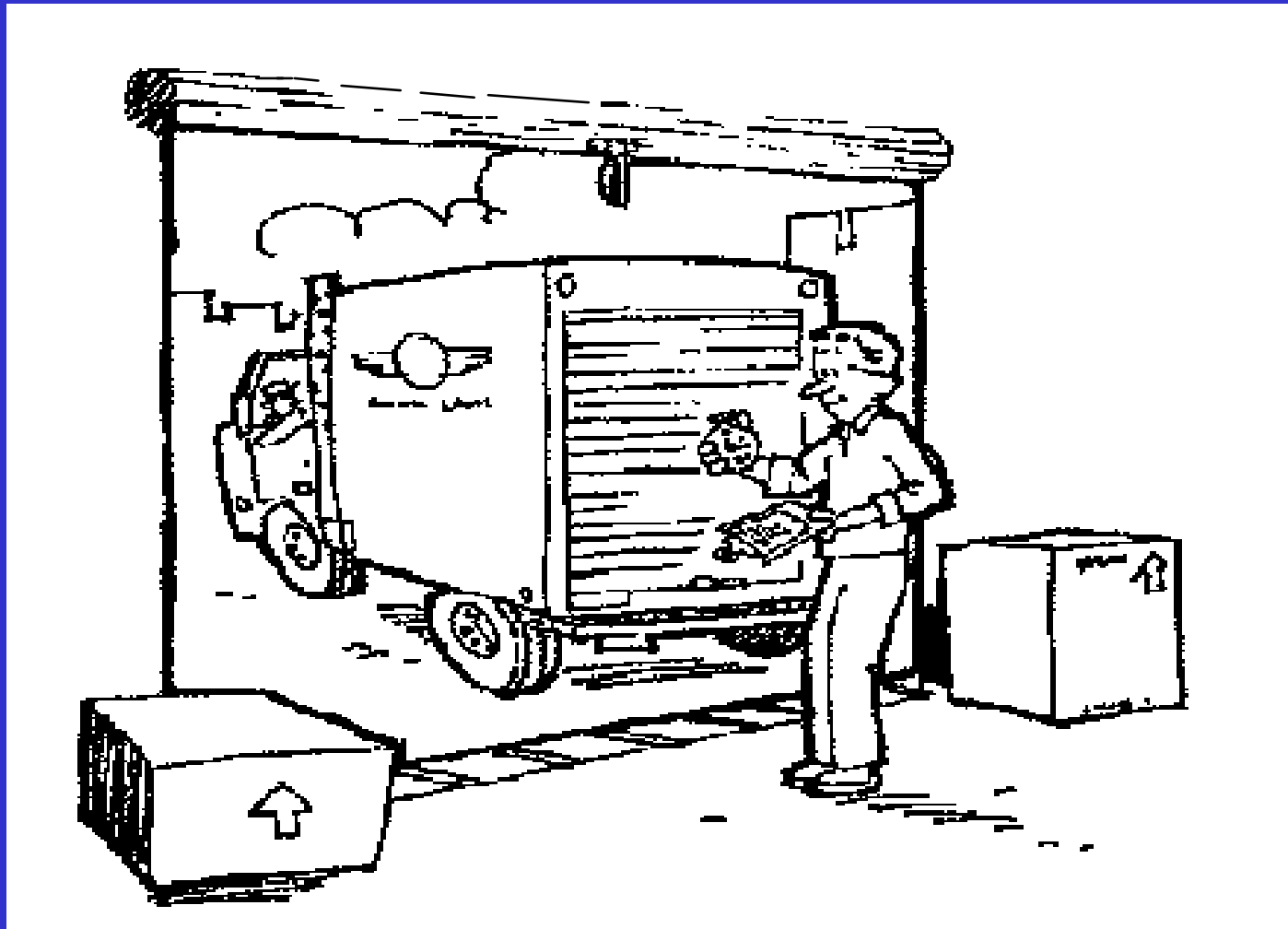
Dock Barriers



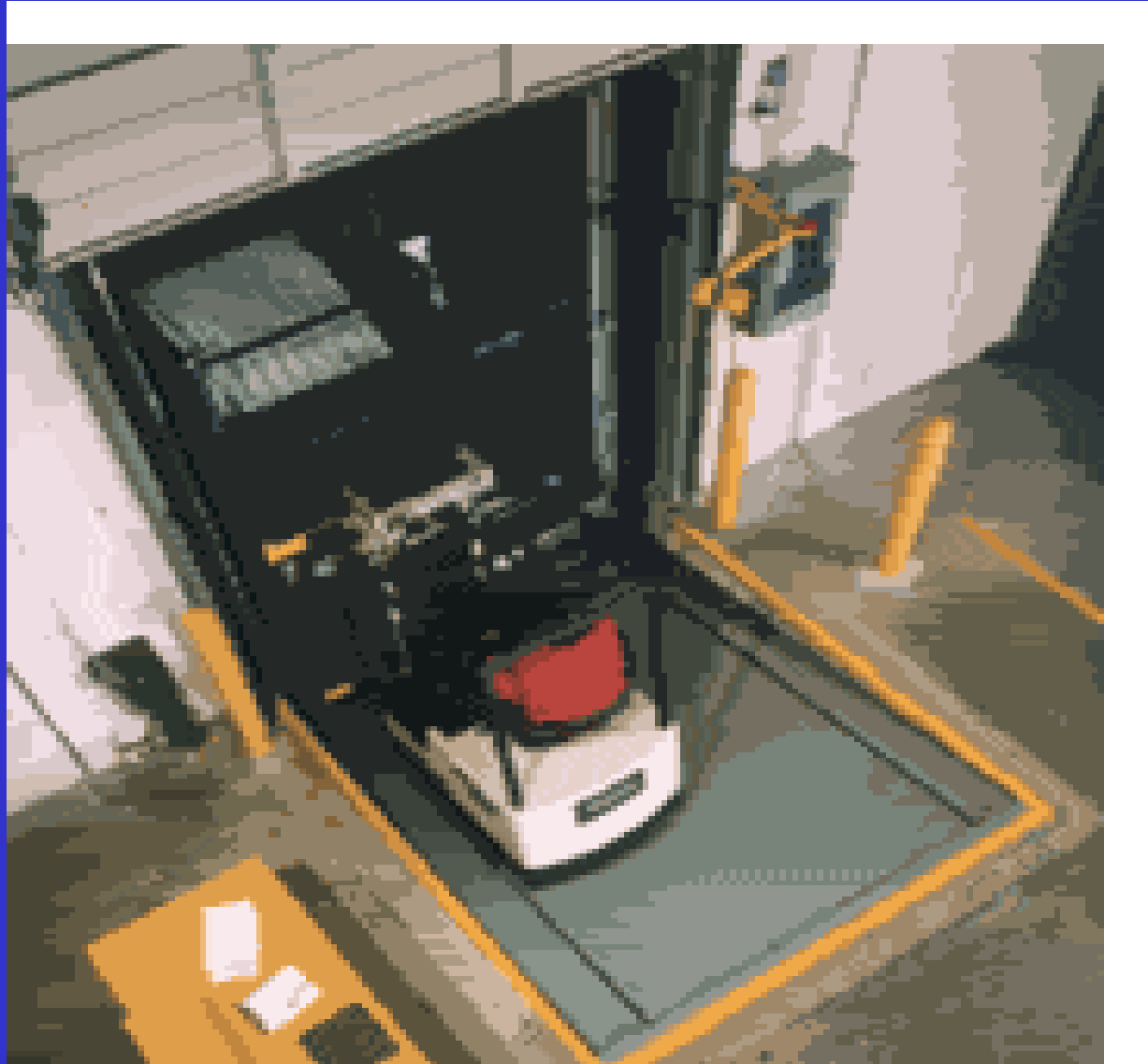
Dock Seals



Dock Productivity



Improvement Opportunities



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Improvement Opportunities

- Cube utilization
- Eliminate dead storage
- Adequate lighting
- Perpendicular racking
- Eliminate unauthorized personnel
- Schedule activities
- ASN's, scanning & proper equipment
- Training

Questions

