Receiving and Shipping

- Consider <u>handling</u>, <u>storing</u>, and <u>control</u> requirements to provide the proper combination of <u>space</u>, <u>equipment</u>, and <u>people</u>.
- Receiving and shipping functions interface with the outside environment.

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Receiving and Shipping

- · Desirable Attributes
 - Directed flow paths (watch out for double handling)
 Continuous flow of effort (try to schedule inbound shipments)
 - Concentrated area that minimizes material handling
 - Efficient material handling (try to influence unit
 - load configuration)
 - Providing safe operations
 - Minimizing damage
 - Providing good housekeeping

Receiving and Shipping

Other Considerations

- Smooth interface between vendor's and receiver's (or shipper's and customer's) information system
- Returnable containers (including attrition and
- replacement)
- Returned goods
- Returning carriers, i.e., backhaul (maximize utilization of shipper owned carriers)
- Coordination of Receiving and Shipping
 - Common space, equipment, and/or personnel might be used
 - Return of slave pallets for manufacturing
 - Possible centralization of the functions (i.e., receive in the morning and ship in the afternoon)

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Storage Models

- Determine best design for each storage subsystem ٠
- · Unit loads stored and retrieved with lift trucks
- Four conventional storage methods analyzed
 - Block stacking
 - Deep lane storage
 - Single-deep rack
 - Double-deep rack
- Tradeoff between density of storage and accessibility
 - Have different types of space losses due to rack design and honeycombing
 Minimize average amount of floor space required

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