



Guidelines and Expectations for Pallet Configuration: Pallet Design Information

Pallet Load Efficiency Problem Statements

Objective: Target improving load and space efficiencies for supplier provided inbound shipments to the FDC

Issues:

- 1.) Ineffective utilization of pallet area
- 2.) Improperly constructed container layering
- 3.) Uneven pallets: open space found on the top-layer and incorrect overall heights

Problems Caused:

- 1.) Complicates part supply management, congests logistics
- 2.) Boxes failing during shipment, possible damage to parts
- 3.) Inefficient use of warehouse storage space

Brown Box Packaging Rules for Pallet Maximization - Container Pack Quantity (CPQ)

- Apply P&A standard box sizes wherever possible in order to configure the most efficient pallet in terms of maximizing the allotted area.
- Pallet area efficiency can be maximized by following basic palletization guidelines listed below.
- The shipping container selection process should involve the box layout before a final decision is made.
- A shipper that offers the best cube utilization and provides an efficient pallet pattern is the most cost-effective selection.
- Select number of containers per pallet based on projected order quantities for the part in question.
- Utilize standard FDC box sizes for simplistic unit load configuration. Cube out pallets correctly, a flat top-layer is necessary for pallet stacking in the distribution environment.
- If a non-standard inbound box is needed, an appropriate sized corrugated container must be selected. The container wall thickness or flute size/integrity should be taken into account for the packaging chosen.
- A C-Flute container will be the most common option for most P&A tasks. We recommend a 275 Mullen Burst, C-Flute corrugated box.

Pallet Information for Inbound FDC Containers: Determining CCFG

- Standard specified pallet dimensions: 48" X 45"
- Adhere to pallet height limitations. A high load must be less than or equal to 72". A low load should be 24" or 48" high.
- Maximizing pallet space (area efficiency) is solely determinant upon the container arrangement (box erection/layout). Selecting the correct number of cases per pallet and choosing proper pallet layout determines the unit load efficiency.
- Pallets with containers overhanging on any side are not accepted. Underhang is allowed if the surface area is best utilized considering the specified container needed.

Palletization Selection Guidelines for Non-Standard Boxes

- Always choose a CCFG which provides a uniform flat top layer.
- Container placement determines the balance between cube area utilization and maximizing stack strength.
- FDC storage racks require a 2, 4, or 6 foot total pallet height for space utilization.

Column vs. Interlocking: Determining which type of pallet pattern is correct for the container needed:

Column stacking method pros:

1. Common central load point keeps the pallet stable and containers balanced.
2. Proper container placement to maximize pallet load capabilities.
3. Less time consuming pack-out operation.

Interlocking stacking method cons:

1. When set-up improperly, interlocked boxes do not take full advantage of pallet load strength.
2. Placing oblong containers in separate directions reduces pallet stability.
3. More Complex pack-out methods could increase labor time.

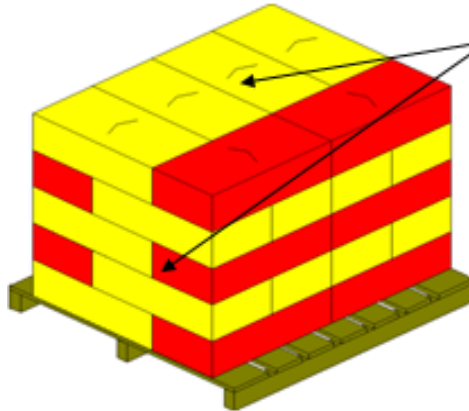
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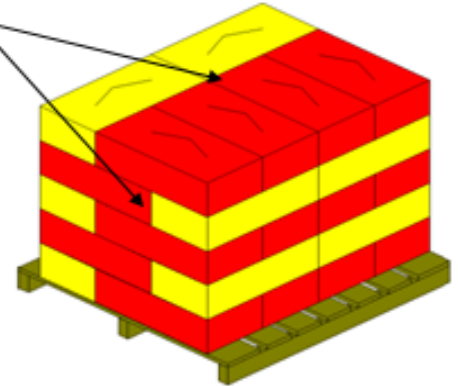
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Case-Pick or Non-Standard Inbound Containers

Choosing an interlocking style case erection



When a standard container size isn't required, looking into an interlocking pallet design can be beneficial if the box dimensions agree with the pallet sizing. The pallets on each side were created with case-pick container dimensions. Notice all of the pallet surface is being utilized efficiently and the containers are placed flush up against one another.

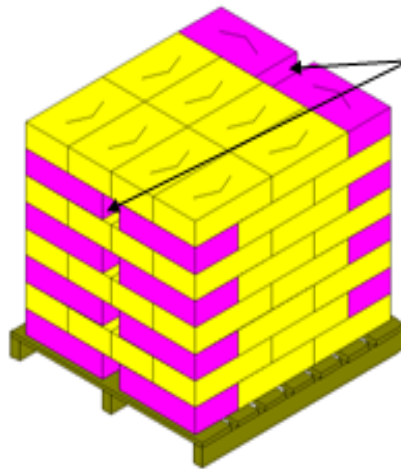


1st Layer

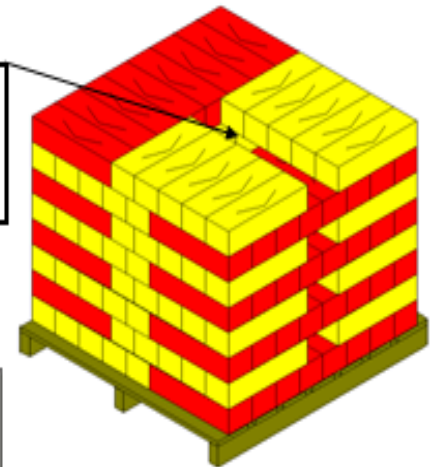
Top-View

2nd Layer

	Interlocking style case erection: Interlocking boxes can increase the stability of the load if the container sizes fit the interlocking style configuration.	
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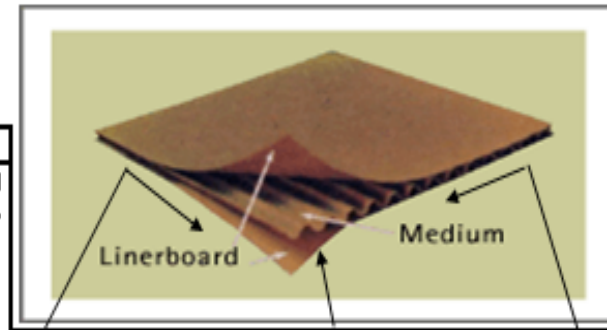


Avoid space between layers: Notice the gaps between each layer, overall load strength decreases and containers could become unstable or crushed during shipment.



Corrugation Direction:

Palletization style should be configured so the box sidewalls run parallel with the medium or flutes. The fluting provides the container with rigidity and strength. To maximize the stacking strength consider the medium direction before selecting a load style.



Machine-Direction holds container strength
Fluting
Cross-Direction

Case Erecting for Structure:

The inbound containers into the FDC are placed onto holding racks in the same orientation as the pallet is received. Maximizing stacking strength reduces warehouse damage from a load stress standpoint.

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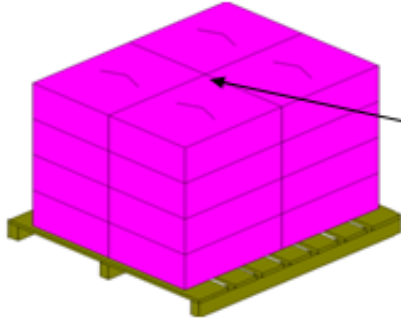


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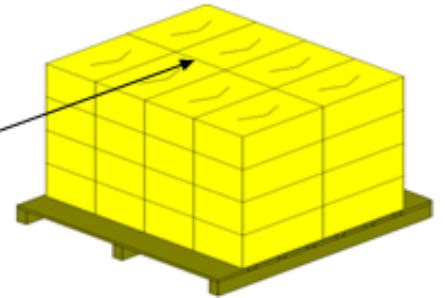
Column style case erection

For use with all standard FDC inbound container shipments
These pallet layouts are the accepted footprints for FDC standard boxes
The overall heights should increase at 2, 4, or 6 foot increments only

Large Bin Box

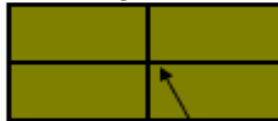


Medium Bin Box



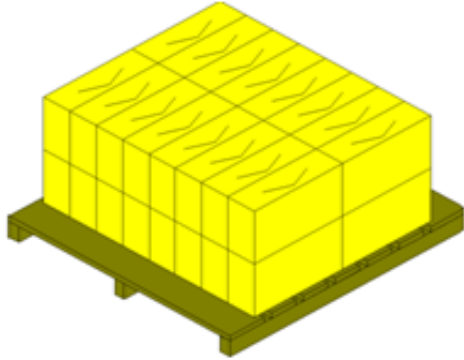
Column style pallet configuration: Notice the amount of pallet area being utilized. All four standard container loads have a common central meeting point. Area efficiency is greatest with column style loads.

Top-View

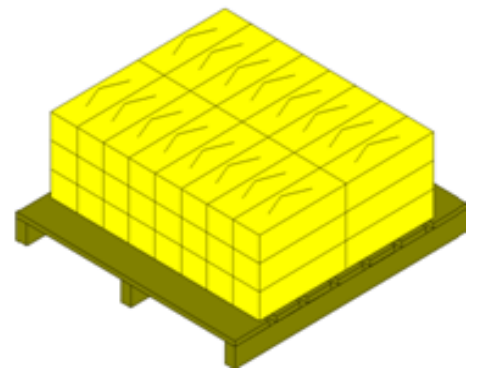


Uniform center helps to distribute load stress evenly

Small Bin Box:



Very Small Bin Box:



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