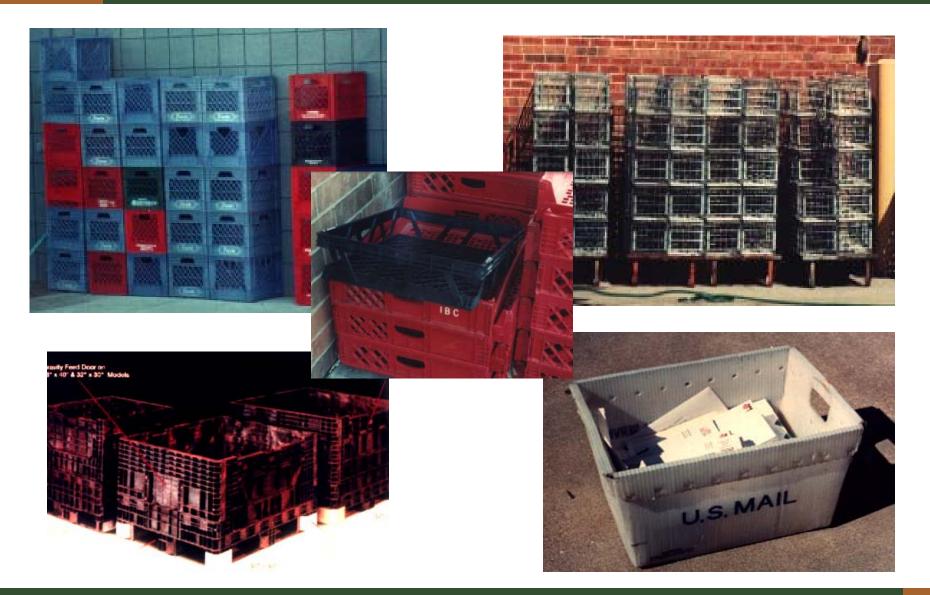
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Returnable/Reusable Corrugated Containers

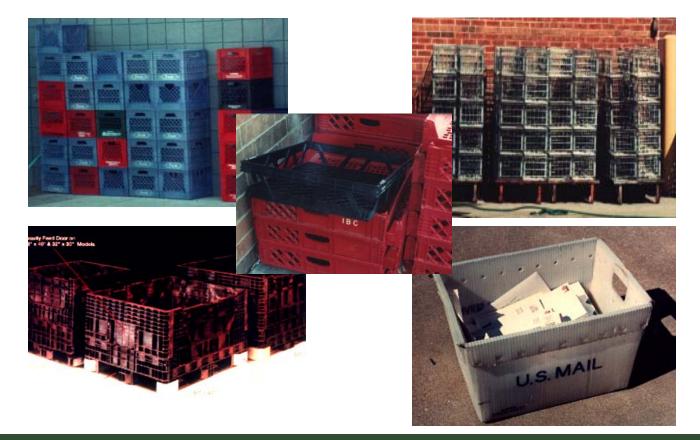
Returnable Containers



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Returnable Containers

- Pallet Bins, Milk Crates, Beverage Trays, Totes
 - Almost all Constructed of Plastic, Metal, or Wire



Returnable Containers

 Corrugated Containers have a History of Being Effective Returnable Containers in the Right Applications



Modular/Reusable Corrugated Containers

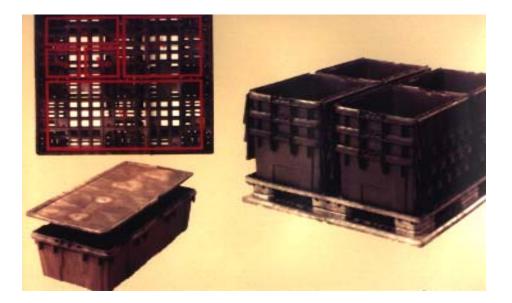
- Topics for Discussion
 - Advantages that Corrugated Containers Have
 Over Other Materials in a Returnable Application
 - Typical Product Applications and What Products to Avoid for Returnable Corrugated Containers
 - Challenges To Overcome In Converting From One- Way to Returnable Corrugated Container Systems
 - Traditional RCC Applications
 - New Generation of Engineered RCC Applications
 - Bulk Applications
 - Potential Tote Applications

Why Corrugated As a Returnable?

- RCC's Offer a Number of Advantages to the User.
- Reduced Costs
 - Reduce packaging material costs through multiple uses
 - Versus expendable packaging
 - Potentially offer advantages when compared to returnable containers constructed of other materials
 - Lower Initial Costs compared to other returnable container materials
 - RCCs Can Serve as Initial Test For Returnable Applications

- Lower Replacement Costs
 - Through Attrition
 - Better able to make size changes as needed
 - Lower Tooling Costs

Cutting dies vs. injection molds



- Lower Replacement Costs
 - Reduced Potential of Loss From Theft or Misuse
 - Corrugated Containers Less Desirable by other parties
 - Lower Replacement Costs





- Optimized cube efficiency
 - Compared to Nestable, inclined wall containers
 - Between 25% and 40% better cube efficiency
 - Better Cube Efficiency in a Knocked Down Flat form



Cubic Loss And Cost Calculation Example

Trailer Size: 48' X 102" X 110" Pallets: 48" X 45" – Custom Automotive Size 24 Pallet Positions Per Trailer Stacked 2 Pallets High - Total 48 Pallets

Cubic Loss And Cost Calculations Example #1 - Standard 1/16 Reusable Container

O.D. - 11 13/16" X 10 7/8" X 7 7/16" O.D. Cube: .520 Cubic Ft I.D. Cube .265 Cubic Ft Loss: .255 Cubic Feet - 49%

Container: - Palletizes 16 Per Layer, 7 High = 112 /pallet, 5376 Per Trailer

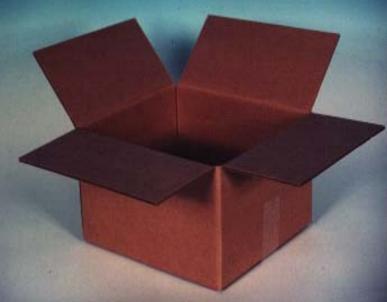
Product Weight: 5 Pounds Per Container, 560#/ Pallet, 26,880#/ Trailer

At a Profit of \$.10 Per Pound = \$.50 Per Container, \$56 Per Pallet, \$2688 Per Trailer



Cubic Loss And Cost Calculations

Example #2 – Auto Bottom - C Flute Container O.D.: 11 13/16" X 10 7/8"X 7" O.D. Cube: .520 Cubic Ft. I.D. Cube: .443 Cubic Ft. Loss: .077 Cubic Feet - 15%



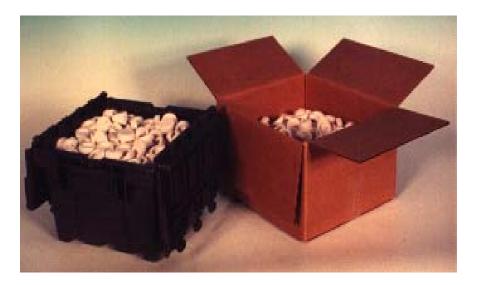
Cubic Loss And Cost Calculations

O.D. Box Size to Match Usable Returnable Volume: 11-13/16" X 10 7/8" X 4 7/16" Box: Palletizes 16 Per Layer, 11 High = 176 Containers/ Pallet, = 8448 Per Trailer

Product Weight: 5 Pounds Per Container = 880 Per Pallet = 42,240# per Trailer

At a Profit of \$.10 Per Pound

- = \$.50 Per Container = \$88 Per Pallet = \$4224 Per Trailer
- = 37% Increase Cube Efficiency & Profit Potential



- Reduced package to product weight ratio
 - Metal, wire, plastic typically weigh more
 - Reduced package to product ratio with Corrugated
- Typically lighter weight Corrugated
 - Ergonomic benefit = reduced worker stress



- Generally Easier to Dispose after useful life
 - Landfilling should not need to be an option
- Renewable Resource Cycle
 - Corrugated Part of the Normal Waste Stream
 - Recycling Logistics Already Exist
 - Recycling benefit = \$\$\$\$\$





RCC Challenges

- Not Appropriate For All Products
 - Cold Chain Distribution Chains present Significant Problems
 - Meat Products
 - Produce
 - Heavy Products with Sharp Edges
 - Easily damage RCC container material
 - Dirt or Contaminate Sensitive Products
 - Washing of Containers not an Option
 - Some Applications Specialized Coatings or Expendable Liners may have application
 - = added \$\$\$ for materials
 - May increase labor costs

RCC Challenges

- Durability of RCCs
 - Corrugated is Not As Strong or as Durable as Plastic, Wire, or Metal
 - Need to Balance a Number of Complex Issues Against Other Returnable Options or One Way Packages
 - Returnable Process Return Percentage
 - » Frito Lay other distribution channels
 - Back Haul Distances and Cost of Return
 - Expected Life vs. Replacement Costs

RCC Requirements For Success

- Typically have the same challenges as Other Materials
- Must Have Commitment To A Returnable Program
 - Usually Requires Cultural Change with the Involved Parties
 - Processor / Packer
 - Customers
 - Other Users within the Supply Chain
 - Top To Bottom Understanding & Buy In of Program Goals
 - Endorsements, Incentives, Peer Pressure
- Parties Must View The Package Differently
 - No Longer Just a Container Now an Asset
 - Handle, Transport, Store Differently for Longevity

RCC Requirements For Success

- Design & Specification Considerations
 - Process to Monitor Program Success and Make Revisions Suggested
- What is Expected Regarding Container Performance?
 - Desired Condition of Container Contents Through Use Cycle
 - Overall Rating Use of Container
 - Ergonomics Issues
 - Handles, Knock Down & Set Up Features, Weight
 - Convenience of Use To All Parties
- What Does The Entire Distribution Cycle Look Like?
 - Do You really know what the present expendable package goes through?
 - Information Critical to Develop Specifications for Strength & Durability

Do You Really Know Your Distribution Challenges?



- At The Supplier
 - Incoming Materials Dock
 - Transfer to Storage
 - Storage Environment
 - Transfer to Pack Line
 - Pack Product
 - Unitize Packed Product
 - Transfer to Dock
 - Load onto Trailers
 - Pallet Jack or Fork Truck

- Transportation Factors
- Leg Supplier to User
 - Distance
 - Road Conditions
 - Load Integrity
 - Pallet Condition
 - Performance Factors
 - Single Layer or Double Stacked Pallets
 - Stretch wrapped (totes)
 - Offload at User's Dock

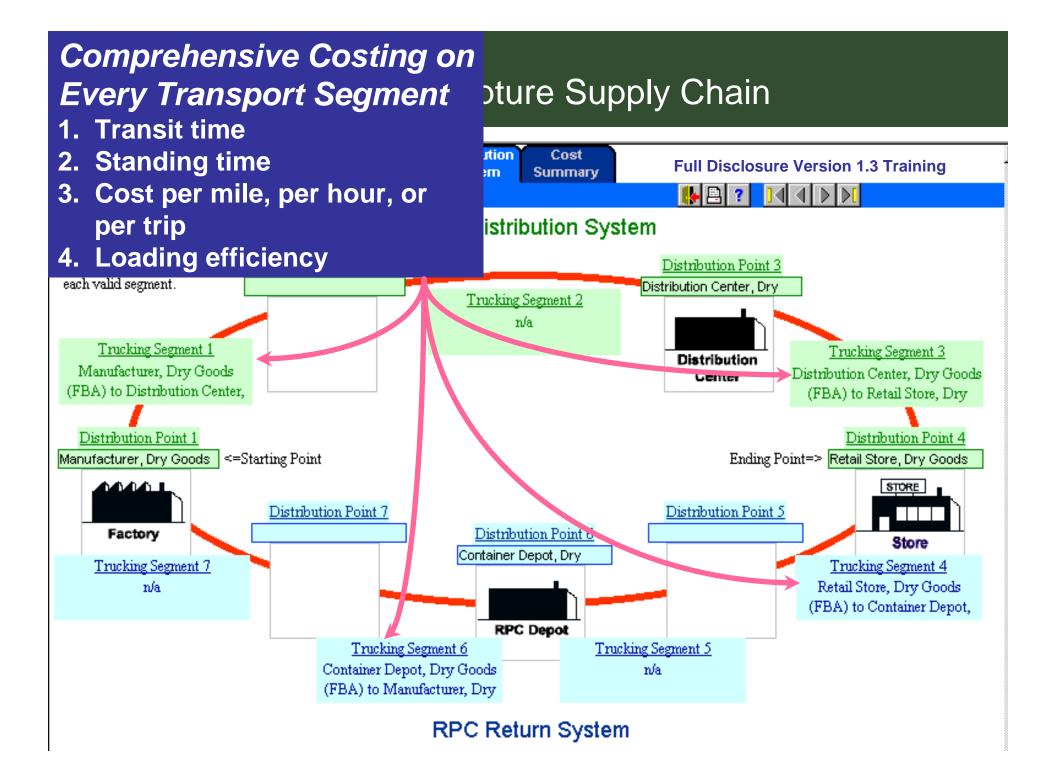
- At The User
 - Offload at Incoming Materials Dock
 - Immediate Use or Put Away in Incoming Materials
 Storage
 - Transfer to Work Stations
 - Type of Use critical
 - Bulk vs. Tote, Nest vs. straight walled vs. Knock Down
 - Collation and Unitization of Empties
 - Transfer to Empty Staging/Storage
 - Transfer to Loading Dock
 - Transfer Onto Return Transportation

- At The User
 - Offload at Incoming Materials Dock
 - Immediate Use or Put Away in Incoming Materials Storage
 - Transfer to Work Stations
 - Type of Use critical
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 - Transfer Onto Return Transportation

Full Disclosure Software

- Comprehensive Model Cost Building Software designed to Compare the Total Cycle Costs between One Way and Returnable Packaging
 - Fiber Box Association
 - Weybridge Associates

Comprehensive Costing at Every Point in System ture Supply Chain 1. Handling 2. Loading/unloading listribution Cost Full Disclosure Version 1.3 Training System Summary 3. Storage 🔥 🖪 ? 4. Shrinkage/damage ct Distribution System 5. Capital (if any) Distribution Point 3 6. Other impacts Distribution Center, Dry **Trucking Segment 2** n/a. Trucking Segment 1 Trucking Segment 3 Distribution Manufacturer, Dry Goods Distribution Center, Dry Goods Center (FBA) to Distribution Center, (7 BA) to Retail Store, Drv Distribution Foirt 4 Distribution Point 1 Ending Joint=> Retail Store, Dry Goods Manufacturer, Dry Goods <=Starting Point STORE Distribution Point 7 Distribution Joint 5 Distribution Point 6 Factory Store Container Depot, Dry **Trucking Segment 4** Trucking beginem / Retail Store, Dry Goods n/a (rDA) to Contain ... Depot. **RPC** Depot Trucking Segment 5 Trucking Segment 6 Container Depot, Dry Coods n/a (FBA) to Manufacturer, Dry **RPC Return System**



Detailed Cost Comparisons

Summary Cost Comparison

Expendable vs. Returnable

Corrugeted Containers Variance Reusable Plastic Containers \$156,570 Ann dal Container Cost: \$673,500 Annual Replenishment Cost: -\$516,930 nnual Label Cost: Annual Label Cost: \$57,576 \$57,576 \$O| \$1,594,988 \$2,156,628 CC Trucking Costs: RPC Trucking Costs: \$561,640 Total trucking costs include trucking and any Total trucking costs include trucking and any standing costs at unloading and loading. standing costs at unloading and loading. CC Handling Costs: \$427,637 RPC Handling Costs: \$764,129 \$336,492 Total handling costs include unloading, han lling, Total handling costs include unloading, handling, and loading. and loading. CC Operating Impacts: \$0 \$0İ Detailed cost components Operating impacts are detailed at various distribution points. C Disposal Cost (or Recycling Value): -\$63,000 -\$4,209 \$58,791 RPC Disposal Cost (or Recycling Value): \$3,742 CCUnventory Value: CC Inventory Interest Cost: \$374 -\$374 **Bottom Line Comparison** \$191,748 \$688.943 Annual CC Cost: \$2,633,499 Innual RPC Cost: \$3,322,442 Variance after RPC Americanian \$497,195

Evaluate Use Cycle

- What Are The Critical Negative Elements Effecting Performance or Durability?
 - Workstation
 - Package Unitization and Pallet Integrity
 - Handling Practices
 - Storage
 - Transportation
 - Worker Practices
- Which Can Be Changed To Reduce Negative
 Impacts on Package Performance

Specification Development

- Based on
 - Critical Elements Of Distribution Cycle
 - Desired Performance of Container and Contents
 - Desired Number of Trips to Justify Container Use
- Balance Between
 - Cost of Materials
 - Minimum Number of Uses Performance
 - Loss Issues
 - Cost to Upgrade vs. Recognized System Loss Percentages

Examples Of Traditional RCC Applications

- Snack Foods
- Warehouse Replenishment
- Postal Service
- WIP Totes

Snack Food Applications

- Snack Foods
 - Typically Lightweight Products
 - Cubic Containers Some Footprint Standardization
 - Size Specific, but Not Design
 - Closed Loop Delivery System
 - Route drivers regular delivery schedule
 - Maintain control of packages through the cycle
- Returns usually in the 4 to 8 cycle ranges
- Some Losses through Palletized Distribution Channels

Snack Food Examples

- Utz Quality Snacks
 - Drivers receive small credit for each container returned



Snack Food Examples

- Frito Lay
 - Both Route Driver and Palletized Distribution Channels
 - Average Just over 5 trips per container
 - Balance Material Strength/\$ vs. Return %



Warehouse Replenishment Applications

- Warehouse Applications
 - Broken Case Quantity Deliveries
 - Seasonal Product Set Up Deliveries
 - May be the Primary Replenishment Container
- Greater Weight Variations
 - Broader Array of Products
 - Cubic Containers Some Footprint Standardization
 - Single vs. Multiple Sizes
 - Greater Design Variations

Warehouse Replenishment Applications

- Typically Closed Loop Delivery Systems
 - Between D/C and Specific Stores regular and sometimes daily delivery schedule
 - Success is dependent on maintaining control of packages through the cycle
- Returnable Life usually in the 4 to 8 cycle ranges
- Losses Typically Occur Due to Poor Top to Bottom Commitment and Worker Education

Warehouse Replenishment Examples

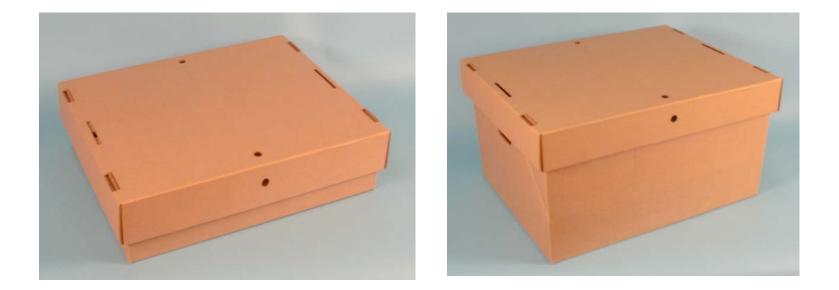
- Wal*Mart Automatic Bottom Design
 - Corrugated and Plastic Corrugated
 - Associates encouraged proper handling and return through box print



Warehouse Replenishment Examples

• Kohl's & Sports Authority

- Single Size three piece tote
- Knock Down Capable



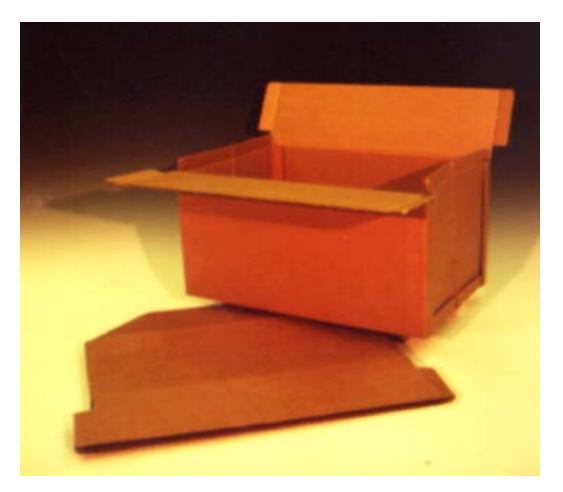
U.S. Postal Service

- Used for Transference of Mail Between Hubs
 - Corrugated Tray and Sleeve
 - Plastic Corrugated Also Used



Other Examples of RCC Container/ Tote Designs

• Collapsible Bliss Container



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Other Examples of Typical RCC Container/ Tote Designs

 Die Cut Containers with Snap Lock or Tuck Lock Features



Next Generation of Engineered RCC Package Designs

- Engineered Structures and Improved Materials
 - Enhance Performance & Durability
- Many Designed For Specific Market or Product Needs
- Existing and Potential Opportunities
 - Bulk Applications
 - Hand Held Tote Applications

Bulk Applications

ReBULK

- Robust Bulk Handling System
 - Ideal for Flowable Solids



Peanut Industry Success

- Cost Effective Returnable System Desired
 - Reduce Material Waste and Labor Costs Associated with Clean Up of Expendable System
- Engineered Design
 - Added Horizontal Panels to Minimize Bulge
 - Allow use on automated dumping equipment
 - Bellows Bottom
 - Facilitates knock down for return
 - Reduces paper tear risk extend life
 - Un-Slotted Top Flanges Forms Robust Collar extends life
 - Sanitation Poly Propylene Bag
 - Allows peanuts to breathe
 - Prevents product contamination from multiple trips

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Peanut Industry Success

- Distribution Cycle
 - Sheller packed with nuts
 - Delivered to Processor
 - Storage, Processing, Knock Down
 - Return to Sheller
- Minimum 10 Trips per Container
 - \$150/one way vs. \$40/ returnable









Engineered Returnable and One Way Bulk Handling System





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- Engineered Features and Advantages
 - Collapsible Bulk Box w/lid & Corrugated or Composite Shipping Platform





- Completely customizable
 - Material combinations for specific distribution needs
 - Graphics/text clearly printed on all sides
 - Plastic cores/bottom decks available for severe environments



- Ergonomically friendly easy to set up and knock down for storage, reshipping, and reuse
 - Lightweight corrugated materials makes for easier handling



- Attached to Corrugated Shipping Platform

- True four-way entry
- Easily handled with forklift & pallet jack equipment



- Compatible with conveyor systems and material handling equipment for greater efficiency and cost savings
- USDA approved



 Collapsible - Saves Storage Space & Minimizes Backhaul Costs



- Flexibility For Use by The Customer
 - One Design Satisfies 2 Needs
 - Reusable reduce costs and waste 6 to 12 turns
 - One Way when return costs are too expensive or impractical



Recycling - Closing the Loop

 Environmentally friendly – Pallet Pack is 100% recyclable...and made from 100% recyclable fiber!





D.O.D.

- Major Customer Categorized as a "Critical Need Product"
 - Cannot Run Out of Stock
 - Used By Supply Depots Supply All Commissaries and Bases with Bulk Shipments of a Variety of Products
 - Used in Both Returnable and One Way Applications
 - Determined by distance and practicality







Supply Depot Use





Pallet Pack Set Up Accomplished in Seconds



Pallet Pack KD Process Similar as Set Up



Department Of Defense

• Packing & Handling









Department Of Defense

- Unitization & Outbound Shipment Preparation
 - Destinations have included Afghanistan & Kuwait





Other Markets for Pallet Pack

- Automotive U.S. to Europe Shipments
- United Nations Acceptance
 - Pine Nematode
 - Asian Long Horn Beetle
- Largely One-Way Shipments



Next Generation Engineered Packages

RCC - Structurally Enhanced Tote Opportunities

Trends in Manufacturing Creating Opportunities for Returnables

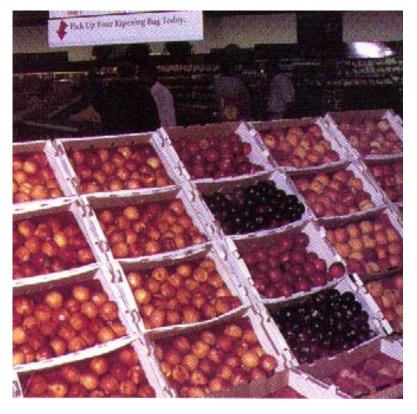
- <u>Material Handling Management</u> "Are Reusable Containers Worth The Cost?"
 - Evolution of returnable containers to improve manufacturing efficiencies
 - Move away from multi-layer bulk packs
 - Reduce container size = limits part quantities
 - reduce inventory carried at the line
 - reduce space requirements at the line
 - weight limit issues
 - Improve part access and orientation
 - Minimize searching for parts between layer pads
 - easy access and removal by workers

Increased Use of Straight Walled, Open Top Containers

- Container collapsibility or nesting no longer a critical requirement in many Distribution Channels
 - Milk Run distribution loops
 - Desire to Maximize container cube efficiency/ Minimize size
 - Maximize worker access capabilities
- "Automotive manufacturers are looking to deliver the minimum amount of inventory to the right spot on the assembly line and hand held containers are the way to do it."

Standardized Returnable Corrugated Totes Could Provide Many Of These Functions





Standardized Returnable Corrugated Totes Could Provide Many Of These Functions

• From This



Standardized Corrugated Totes Can Provide Many Of These Functions

• To Something Like This



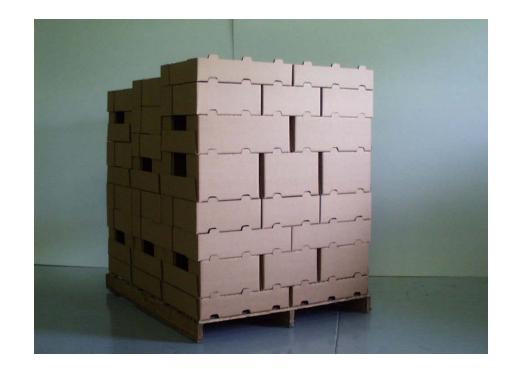


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Sizes and Constructions

 Flexibility In Both Standard Container Size and Materials





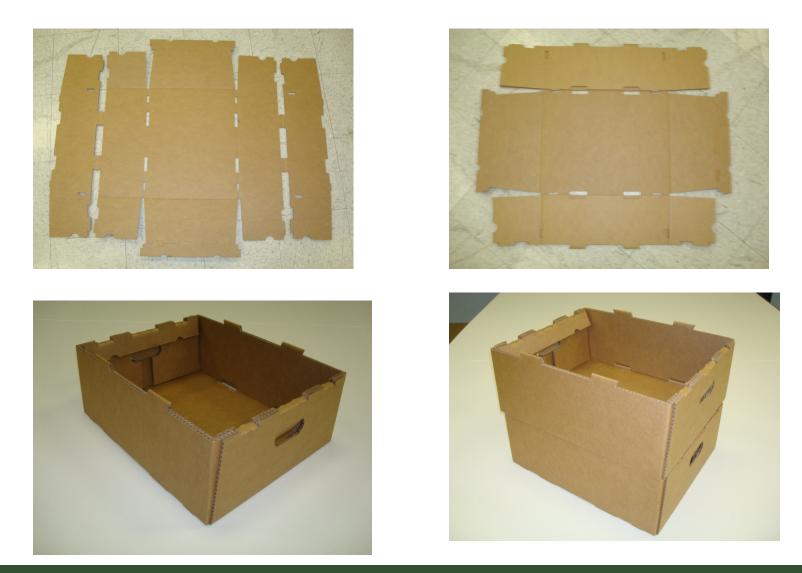
Enhanced Engineering Of Design Options

- Many Corrugated Designs Provide Substantial Strength Characteristics
 - Use of Heavier Weight Materials Can Prolong Longevity
- Three Levels of Supply for These Containers
 - Corrugated Supplier
 - Packer User
 - Third Party Logistics Provider

Potential Sources Of Supply

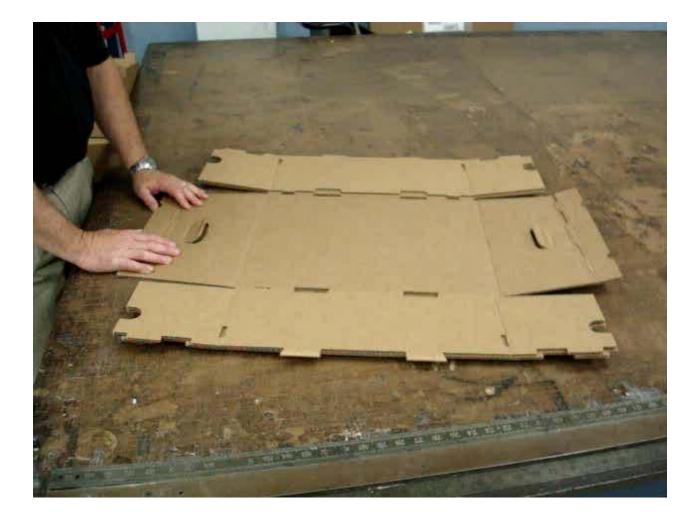
- Corrugated Container Plant Level
 - Niche item local supplier with automotive/manufacturing supplier facility
 - Provide finished returnables of selected sizes and constructions to user
- "On-Site" RCC conversion
 - Bring erecting machinery into manufacturing facility
 - Conversion on an as needed basis
 - Machinery Investment vs. Cost Control
- Third Party Logistics Provider
 - Containers now an asset that can be effectively managed

Hand Fold Design Options – Hinged Tab Fold Over



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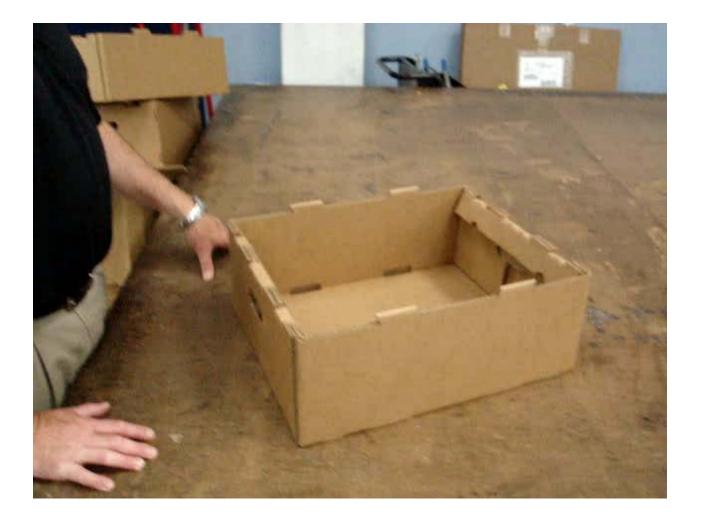
Hand Fold Design Options – Hinged Tab Fold Over



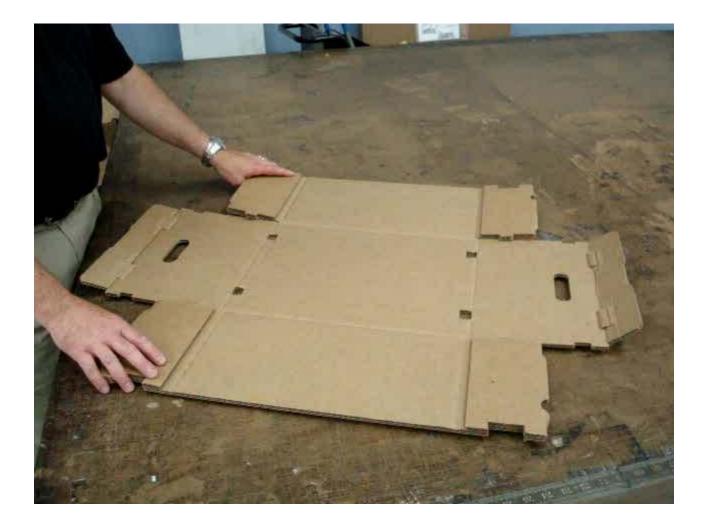
Hand Fold Design Options – Hinged Tab Fold Over



Hand Fold Design Options – Knock Down



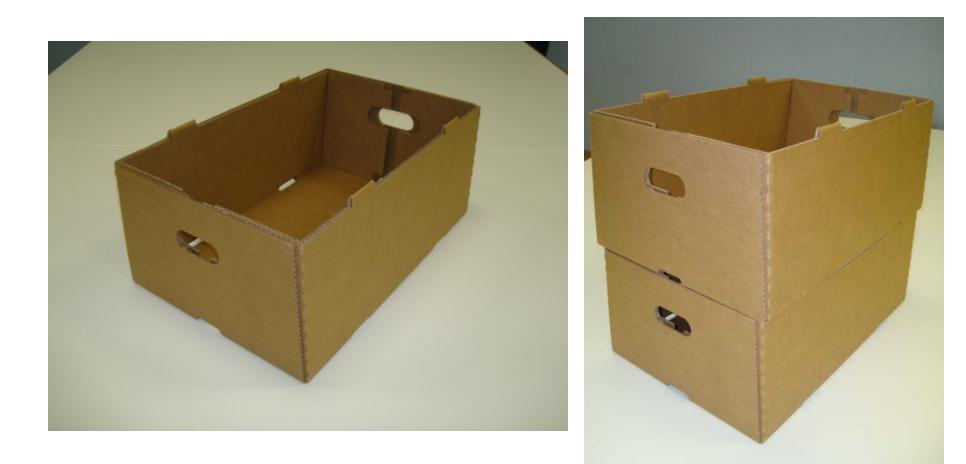
Hand Fold Design Options – Corner Post



Machine Erected - Design Candidates

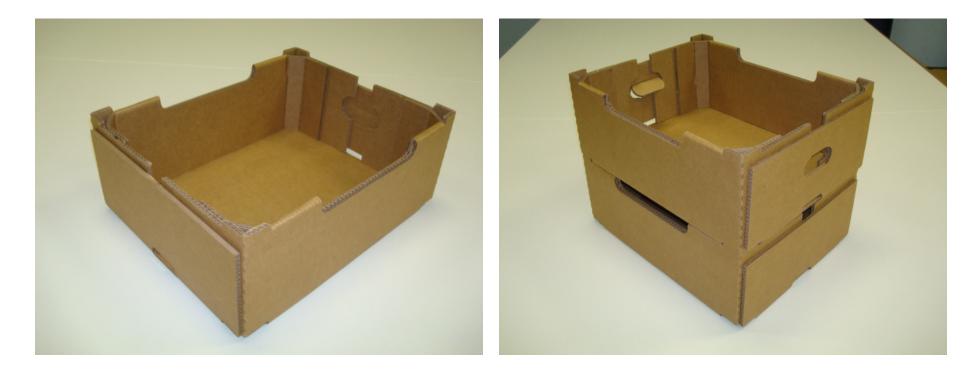
- PLAFORM
- Flush End
- DEFOR/ One Touch/ Curved Corner
- Showcase
- All Can Be Engineered with a Range of Materials and Constructions
- Machinery Formed Designs
 - Improved Strength and Durability

Hinged Tab – Fold Over Tray





• L Stack Tabs provide 4 sided stability



Bellows Bottom Tray





Bliss Box – Bellows Bottom



Subsidiary Items For Corrugated Returnables

- Removable or permanent dunnage
 - Provide protection and product orientation
 - Foam, chipboard, solid fiber, corrugated, plastic corrugated, poly film
- Label Placards
 - Permanent and Single Use
 - Permanent License Plates
 - Single Use Easy to Remove Labels
 - Kennedy Group Potential Source

Overcoming Pressure Sensitive Label Challenges



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Kennedy Group - Patented Placard Label Holder Allows for easy removal & replacement of labels

- Prevents mislabeled/misidentified containers improving productivity.
- No more scraping labels which reduces labor cost.
- Efficient way to accurately identify, track and manage reusable packaging
- Containers can be easily stacked and nested without labels falling off.
- Can be used with virtually any label.





Kennedy Group - Patented Placard Label Holder Works with Fiber Based Packaging As Well

• Fiber Drums & Corrugate Boxes





Standard Placard Sizes & Options

- 3" x 5"
- 4.5" x 6.5"
- 4.5" x 7.875"
- 6" x 8"
- 8" x 10"
- 14.25" x 10.25"

- Blank
- Printed "Place Label Here"
- Custom

Subsidiary Items

- Graphics
 - Customer specific printing
 - Solid color or specific printing
 - Plain kraft

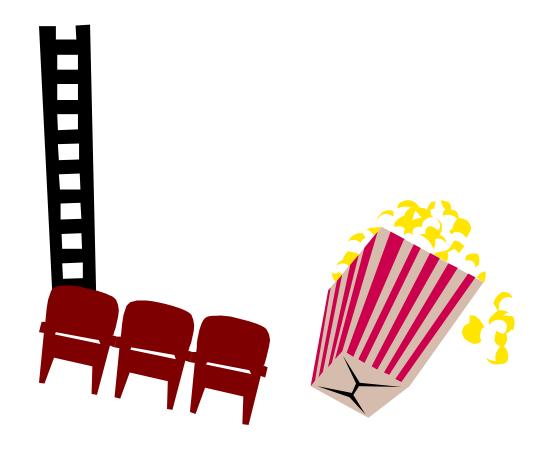
- RFID capabilities
 - Continuing evolution
 - chip & label combinations
 - conductive inks



Opportunities for Next Generation RCC Totes

- Lighter Weight Products
 - Plastic parts
 - Plastic part assemblies
 - Interior moldings
 - Lightweight & Medium weight fasteners
 - Work in Process Containers "In House" movement
- With the Evolution of Design Constructions and Materials
 - Broaden the scope of application
 - connectors/ wiring harnesses, etc.
 - Variety of other products and industry applications

Set Up Machinery Videos











Summary

- Returnable Corrugated Containers can be an effective alternative to RPCs in a number of Markets
- In the right application, corrugated designs can provide multiple returns/uses at a substantially reduced cost compared to expendable packaging.
- Effectively implementing an RCC program may require significant time and effort on the part of the box plant team or company.
 - The question is whether the business at Risk is worth the effort?
- Corrugated Returnable Containers have a long history of success in a number of markets. Your efforts to expand upon these successes will dictate expanded use in the future.

Thank You For Your Time!









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