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CLASS: Lecture (2-1/2 hour)

TITLE: **Shipping Boxes for Framed and Flat Art**

OBJECTIVES: Learn how to construct drop spine box and sink box for easy and efficient transportation of artwork and shipping across country. These quick and easy to build boxes will store, protect, and ship both customer art AND your award winning PPFA competition pieces to Chapter and International competition locations. Reusable boxes are built with 1/2" foam with 2" eggcrate sponge lining, and meet standard shipping requirements. Discussion to include materials alternatives, box variations, and info on crating and shipping companies.

WHO SHOULD ATTEND: All levels. New shipping requirements for competition pieces makes this workshop highly recommended for PPFA competition participants. **These boxes are perfect for use in PPFA PRINT and OPEN Framing Competitions.**

BIOGRAPHY: Chris is a second generation picture framer, as well as designer and artist who has been an independent educator and industry consultant of mounting, laminating and creative design since the 80s. She is Technical Mounting Editor for *PICTURE FRAMING MAGAZINE*; has written three trade books on mounting; and continues to be very active with PPFA as Chair of the Competitions Board. She has been building and using these reusable shipping boxes for manufacturers and artists successfully for years.

REFERENCES:

UPS = [www.ups.com](http://www.ups.com)  
FedEx = [www.FedEx.com](http://www.FedEx.com), "How to Pack"  
USPS = [www.USPS.gov](http://www.USPS.gov)

The Foam Factory = <http://www.thefoamfactory.com/acousticfoam/eggcratefoam.html>  
Craters & Freighters = <http://www.cratersandfreighters.com>  
Fine Art Shipping = <http://www.fineartship.com>  
Ship/Art = <http://www.shipart.com>  
ArtFloat Systems = <http://www.airfloatsys.com>

# Shipping Boxes for Framed and Flat Art

## I. General Packaging

External Requirements = corrugated boxes, foam boards, wood

Internal Requirements

2-4" of padding surrounding

Apply crisscross of tape across glazing or Glas-Skin

Cover sharp frame corners with corrugate or pads

Sealing small boxes

Tapes to use

2"-3" wide packing tape for light packages

3" 60#, water activated tape for heavy packages

Water activated reinforced tape

DO NOT USE

No duct tape, Kraft paper tape, cellophane tape, or masking tape

No string, rope, or Kraft paper wrapping

Tape Application to Corrugated box

Tape across ALL seams and flaps in "H" pattern

Plus 3 strips of tape to top and bottom sides

Labeling boxes

Place duplicate shipping information inside box

Remove or cross out all old shipping labels

Do Not place labels over seams, edges or place tape over

"UP" or "THIS END UP" means nothing (these designations are for recipient only)

Keep label 4" from edge of box, on the largest surface side

## II. Shipping Small Scale Art

In-House Packaging

AirFloat Systems Strongbox = [www.airfloatsys.com](http://www.airfloatsys.com)

UPS = [www.ups.com](http://www.ups.com)

FedEx = [www.FedEx.com](http://www.FedEx.com)

USPS = [www.USPS.gov](http://www.USPS.gov)

Commercial Art Shippers – crate, store and ship

Craters & Freighters = <http://www.cratersandfreighters.com>

Fine Art Shipping = <http://www.fineartship.com>

Ship Art = <http://www.shipart.com>

## III. Internal Shipping Materials

Loose pellets/peanuts

Bubble wrap

Encapsulated air bags

Altitude and temperature change bags

High to low bags decrease = low to high bags increase

Cold decreases = heat increases

Foam linings

Expanded Polystyrene = moldable, designed with ribs for support, light

Polyethylene Foam = crumbly, white pieces, compressed into shapes, rigid

Sheets 1/2" to line exterior and Molded to conform to item

Polyurethane Foam = low density flexible sheet, shock absorbing

Convuluted foam sheets = eggcrate foam, should be 2" thick

Paper fillers

Shredded paper

Kraft paper = wadded not wrapped, requires 4" all six sides

Crumpled to fill spaces for nonfragile items only

Multi layered paper padding = used by moving van companies for nonfragile items

Corrugates = Two or more layers of single or double wall in a block

Best used for heavy, nonfragile items

Bob in Box method

#### IV. Reusable Foam Shipping Boxes

Sink Box fro Flat Unframed Art  
Hinged Shipping Box  
Double Wall Box  
Drop Spine Box

#### V. Box Materials

Foam board, Gator, MightyCore...  
Sponge foam lining = convoluted; eggcrate foam  
Packing tapes  
Hot glue = 3M Hot Jet Melt Gun and #3797-TC pellets

#### VI. Commercial Shipping

Travel Frames – no touch with OZ Clips  
Museum Crates  
Travel Crates  
One-Way Crates  
Insurance  
    Good Crating/Bad Crating  
    Lloyds of London...

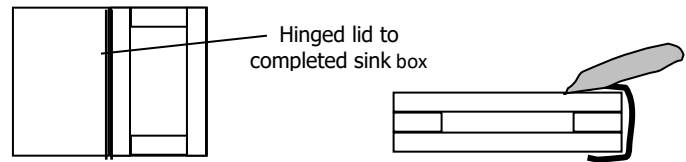
### SINK BOX

The idea of a sink box is somewhat the same as a sink mat, to build up the outer edges of the unit to protect and buffer the artwork from damage. Reinforcement walls are built to be equal to or just slightly thicker than the matted, stretched or laminated piece to be shipped, and the protective walls are 1-1/2" to 2" wider on all sides than the matted art.

These are designed to be temporary shipping units for flat items only, used once then discarded.

#### MATERIALS

3/16" Rigid foam type board  
ATG tape or 3M #3797 hot glue  
2" clear shipping tape  
Linen tape



#### BASIC CONSTRUCTION:

1. Size surface and backing boards cut from 3/16" thick Mighty Core, Hearty Board, Gatorboard...
2. Cut 2 pieces 4-1/8" larger than the actual matted artwork being shipped.
3. Cut 2" wide spacer strips, full length of long sides.
4. Cut end pieces 2" wide the length of the matted art.  
All strips are cut on a straight line mat cutter or wall cutter for accurate widths.
5. Side spacers are ATG taped to the bottom back panel aligning them to the outer edges.
6. The lid is then hinged the full length of the box with a p-s linen tape.
7. Place artwork inside and seal with 2" shipping tape all sides, burnish.

A lift tab is often nestled across behind the center back of the artwork visibly attaching on to the surface of one edge. This strip is only attached on one side to allow for the free tab to lift the art from the recessed sink box. The paper strip tucks down behind the art when recessed and easily pulls it up for removal.

Flat sink boxes will be constructed mostly from scraps of foam. Dented sheets not suitable for mounting and end cuts of 1/8" and 3/16" may be taped together for additional depth. Building a sink box will never be requested and will need to be actively sold if it is to be marketed. This is more a service that may be provided that can turn to profit. Local designers and artists often need dependable shipping for unframed works that require flat mailing rather than in tubes.

## HINGED SHIPPING BOX

If cost is a factor the foam board selected could be impacted. Buying by the case is always more economical than by the single sheet. The heaviest, most durable boards will best protect anything being shipped whether a vase or tapestry. Though the thickness of 1/2" clay coated foam protects well from punctures, more rigid boards are available. Gatorfoam, Mighty Core, Nucor, and Harty Board make up a list to name a few. There are numerous products easy enough to cut on standard framing equipment that enable recycled materials to be turned into great shipping boxes.

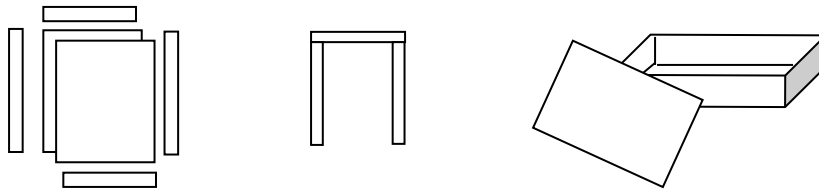
### MATERIALS

- 1/2" Clay coated foam board
- 3M #3797 TC Jet-Melt Hot Glue and Polygun-TC
- 2" Shipping tape
- Eggcrate foam

### BOX MEASUREMENTS:

1. Measure total outermost dimensions (OD) of the actual completed frame to calculate total box size. Then cut 2 pieces, same size.
2. Measure side height for depth of box and cut 2 pieces same length as box
3. Cut same height sides 1" less for end pieces to fit between 1/2" long sides.
4. With box bottom flat on the table, run a bead of hot glue along outer 1/2" long edge and position side perpendicularly into place, hold until glue cools.
5. Repeat on opposite side.
6. Repeat with the two shorter end pieces, also run a bead of glue up the side of the box where the two sides will butt together, hold until cool.
7. Reinforce all seams with 2" shipping tape in a 90 degree wrap.
8. Burnish all tape in place with a burnishing bone.
9. Cut eggcrate foam to fit inner bottom of box using a sharp blade and straightedge.
10. Apply hot glue to box bottom and affix foam into place.
11. Measure and cut eggcrate foam to fit sides of box and glue in place.

Place artwork into box, cut eggcrate foam for to fit into top, and cap with top piece of 1/2" foam board. Mark top side for opening upon arrival of shipment.



### ADDING EGGCRATE LINING:

Eggcrate foam is best for padding the inside of the box because of its contoured design. It more readily conforms to the odd shape of some mouldings and the slightly recessed glazing material.

1. Cut large pieces of eggcrate foam for the bottom and top of the box. The bottom piece should be cut to fit the box to size while the top pad should be about 2" smaller around to accommodate for the side padding and inner box wall.
2. Hot glue around the foam to hold it fast as the lid is opened and closed.
3. Line the sides of the box with the same foam for cushioning, and for creating a custom sized cradle for the artwork it will be shipping.

## CORRUGATED SHIPPING BOX

For a one time shipping, corrugated cardboard remain a good filler, shock insulator and easily builds into a decent shipping box. Beginning with flat top and bottom pieces cut to proper size, then create four-sided hollow tubes by folding scored sheets. Boxes may be quickly assembled meeting all standard shipping suggestions.

## **DROP SPINE SHIPPING AND STORAGE BOX**

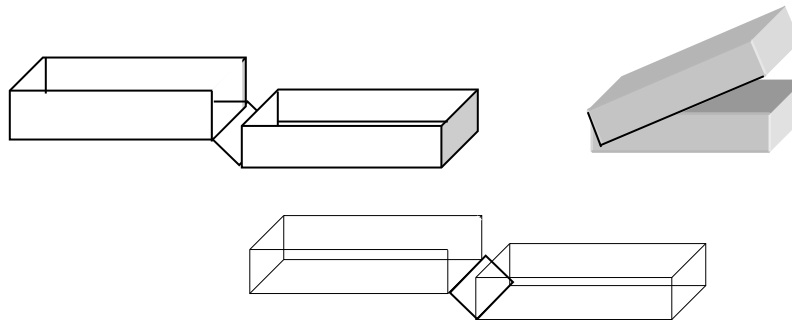
The reusable drop spine box is a little more work but very user friendly. It is perfect for multiple shipping for artists from exhibition to exhibition. Artwork is well protected and easy to pack or unpack. A drop spine box is one where the lid remains hinged to the bottom at all times. Though shipping standards suggest a 3" buffer surrounding the art, since these boxes end up with doubled 1/2" foam walls lined with eggcrate foam 2" in padding surrounding the art as a buffer is adequate to meet shipping standards.

### **MATERIALS**

- 1/2" Foam board for top, bottom and sides
- 3M #3797 hot glue
- 2" Sealing tape
- Bone burnisher
- 1-1/2" to 2" Eggcrate foam

### **ASSEMBLY:**

1. From the outermost extremities of the moulding add 5" and cut bottom board.
2. Measure the thickness of the framed art adding 2" above and below.  
Cut four box sides the same as the bottom board length dimensions, and width to fit inside long side pieces.
3. The lid is then cut to fit entirely over the completed bottom box when closed by adding another 1" to the bottom box dimensions. This makes all of the walls a double 1/2" foam thickness. Because the lid fits over the box bottom, the dimensions of the box lid will be 1" larger than the bottom and the walls will measure 1/2" higher than bottom box walls.
4. Assemble the box bottom by hot gluing the sides and ends onto the solid bottom, butt joining and trimming side lengths to fit.
5. Run a bead of hot glue down all inside box seams, including vertical corners.
6. Reinforce the outside of the box seams with clear shipping tape wrapping around the 90 degree edges. Clear shipping tape is wider and much stronger than the linen tape.



### **ASSEMBLING THE HINGED BOX TOP:**

1. Make certain the hinge piece extends the entire width of the box, rather than butt joining to the insides of the long sides.
2. Glue sides and front into position, reinforce with glue bead inside seams.
3. Fit the lid over the box bottom, place the hinge into proper position and apply 2" shipping tape to create a swing hinge to hold it.
4. Turn the box unit over, let the hinged end piece fold down 180 degrees over the edge of a table and tape the inside of the same end hinge with the 2" tape.
5. Fold the end piece back into closed position and temporarily tape it to the bottom box to hold it into position, then run a strip of shipping tape along the seam leaving the last 1/2" of top box walls free of tape.
6. Open the box by gently pulling the two halves apart remembering they are now hinged together. Suspend the box bottom over a table edge to expose the inner seam for easy taping. Place a strip of shipping tape along this inner seam.

Once the two box halves are hinged together make certain all seams have been reinforced with one single piece of 2" wide shipping. The assembled box has a solid, reinforced base box unit which has been hinged to the box top using the end of the box as a hinge.

# FedEx Ground

## Single-Box Packing Method

- Ship nonfragile products like soft goods inside a sturdy outer box.
- Use fillers like crumpled newspaper, loosefill peanuts or air-cellular cushioning material such as Bubble Wrap® to fill void spaces and prevent movement of goods inside the box during shipping.
- Place goods that might be affected by dirt, water or wet conditions inside a plastic bag.
- Consolidate small parts or spillable granular products in a strong sealed container, such as a burlap or sift proof plastic bag, then package in a sturdy outer box.
- Use the H taping method for sealing your package.



## Box-in-Box Packing Method

- Wrap product(s) individually with at least 2" thickness of air-cellular cushioning or foam material to fit snugly inside a corrugated box.
- Restrict product movement inside the box using filler like crumpled newspaper, loosefill peanuts or other cushioning material.
- Close and tape the inner box using the H taping method. This will help prevent accidental opening.
- Use a second box that is at least 6" longer, wider and deeper than inner box.
- Choose the wrap or fill method to cushion the inner box inside the larger sturdy outer box.
- Ship fragile products individually, wrapping them in a minimum 3" thickness of air-cellular cushioning material.
- Wrap the inner box with 3" thickness of air-cellular cushioning material or use at least 3" of Loosefill peanuts or other cushioning material to fill the spaces between the inner box and outer box on the top, bottom and all sides.
- Fill any void spaces with more cushioning material.
- Use the H taping method for sealing your package.



## Corrugated Boxes

Sturdy Boxes

Use sturdy boxes with flaps intact.

Heavier Items

Use double-wall boxes for heavier items.

Room for Cushioning

Make sure your box is large enough to put adequate padding around contents.

## Inside Cushioning

Cushioning materials

Use corrugated fiberboard, molded plastic material, loose "peanuts", densely packed shredded paper, or bubble wrap as cushioning.

Minimum cushioning

Use at least 2" to 3" of packing material all around the item (centered).

Fragile items require more cushioning.

## Sealing Your Package

Tape all seams securely end-to-end with one of these kinds of tape:

Pressure-sensitive packing tape, minimum 2" width.

Water-activated paper tape, 60-lb. grade, minimum 3" width

Water-activated reinforced tape.

**Do Not** use duct tape, Kraft-paper tape, cellophane tape, masking tape.

**Do Not** wrap the outside of your package with string or Kraft paper .

# UPS

## Internal Protection

Internal packaging provides shipment protection during the distribution process. Good internal packaging should have the ability to protect the product from shock and vibration, and then return to its original shape to provide further cushioning. There are a number of internal packaging materials and methods to consider before shipping a package.

## Internal Packaging Materials

### Expanded Polystyrene Peanuts (loose fill)

Primarily used as space fillers for lightweight items. They are not recommended for use with flat, narrow, or dense products that may migrate within the package because they shift and settle during the distribution cycle. This shifting and settling allows the product to shift within the package, exposing it to a higher probability of damage. The minimum guideline for Loosefill Peanuts is to use a minimum of three inches (7.62 cm) of them around all sides of the container. In addition, the package will need to be overfilled by at least one to two inches (5.08 cm) to allow for shifting and settling.

### Air-Encapsulated Plastic Sheeting (bubble wrap)

Packing material made of air bubbles that are encased between two poly sheets as they are sealed together. This process allows encapsulated air to provide a cushion to protect against shock. Encapsulated air provides good cushioning for lightweight items, is flexible, and cuts to wrap virtually any shape or sized product. It should not be used to wrap heavyweight products. When using encapsulated-air plastic sheeting, use several layers to ensure that the entire product is protected, including corners and edges.

### Polyethylene Foam Sheeting

Lightweight, soft, resilient foam sheeting material that provides excellent surface protection and cushioning properties. Ideal for protecting lightweight items.

### Inflatable Packaging (air bags)

Inflatable packaging uses air pressure to secure and hold products in place inside the shipping container, and provides an air barrier of cushioning. Extreme climate conditions will affect the amount of air pressure in the bags. In extremely cold conditions, the volume of air will decrease, causing extra space inside the package and increasing the risk of product damage. Extremely hot conditions will cause the air bags to expand, which can create stress on the seam of the shipping container.

Altitude variations also affects the volume of air inside the air bags. Traveling from high to low altitudes (for example, packaging a shipment in Denver, Colorado, and shipping to New Orleans, Louisiana) will cause the air bags to decrease in size, and traveling from low to high altitudes will cause the air bags to increase in volume.

### Foam-in-Place

Foam-in-Place is formed by a chemical mixture that expands and forms a protective mold around contents. Foam-in-place forms a mold around any product, supports corners, protects edges, and is useful where cushioning is needed. For maximum effectiveness, the foam-in-place must be evenly distributed around the items. Otherwise, the foam will not protect the product. Select the appropriate density of foam to meet packaging needs, which can range from void-fill applications to high-performance cushioning.

### Kraft Paper

Kraft paper is wrapped and crumpled to fill empty space inside a package with light-to-medium weight, non-fragile items. When using kraft paper, tightly wad the paper and use at least four inches (10.16 cm) around and between the contents. Make sure that there are at least four inches (10.16 cm) of kraft paper on all six sides of the box.

**Paper Cushioning**

Multilayered (not-newspaper or newsprint) paper padding ideal for wrapping medium to large sized, non-fragile items and those that may require moisture absorption. Paper cushioning is excellent for filling empty spaces.

**Expanded Polystyrene Foam (EPS)**

EPS is a moldable, lightweight, low cost foam with minimum impact cushioning abilities. EPS is often designed with ribs that will compress on impact and return to its original shape. It is not as resilient as other poly foams, such as polyethylene and polyurethane. EPS is well suited for less fragile shipments.

**Polyethylene Foam (PE)**

PE is a low density cell foam. Molded or fabricated PE offers superior shock and vibration reduction capacities, making it suitable for cushioning high value or fragile items.

**Polyurethane Foam (PU)**

Polyurethane is a low density, flexible foam that offers good shock absorbency and resiliency. Because it is a lightweight, flexible foam, it is more suitable for light loads.

**Corrugated Board**

Two or more layers of single or double wall corrugated board may be laminated together to form blocks or pads. These pads can be used to form a protective shield between the product and container. Corrugated pads are best used with heavy, semi-to non-fragile products. Corrugated board can be shaped to form trays, liners, partitions, and other package accessories that work to cushion semi-to non-fragile products and increase the integrity of the shipping container.

## Cushioning Methods

**Blocking and Bracing**

By using a resilient material, you can block and brace shipments by absorbing the shock energy and direct it towards the strongest point of the product. The blocking and bracing method is the preferred cushioning method for heavyweight packages.

**Floatation/Stuffing**

Floatation is a method of surrounding an object with small pieces of cushioning material that shift or flow to fill empty space in the package and distribute the impact over the entire surface of the product. This method works best when combined with other packaging methods.

**Wrapping**

Using sheet material of various types, individual pieces are wrapped to protect small items. This method is not adequate for the protection of heavyweight products.

**Suspension**

Suspension is a method of holding the packaged product away from the sides of the container for protection. Materials used for suspension are straps, tape, slings, poly-film, or other supports that can act as flexible restraints.

**Molded Enclosures**

Molded enclosures form to the shape of the product and distribute the force across the product.