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## Wrapping a Painting – Canadian Conservation Institute (CCI) Notes 10/16



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## Introduction

Wrapping a painting can provide important physical protection while helping isolate it from short-term humidity fluctuations, whether it is taken on a local journey by hand or packaged further for shipment.

A well-sealed wrapping allows the organic components inside the wrapping (e.g. the wood of a stretcher or panel, the linen of a canvas) to moderate the relative humidity (RH) in the enclosed air space, as long as there are no extreme temperature variations during transit. If a temperature change of more than a few degrees is anticipated during transit, thermal insulation will also be necessary. For information on additional protection (insulating, cushioning and packing for shipment), please refer to the [Bibliography](#) and [Further Reading](#) sections.

For the purposes of this Note, it is assumed that paintings have been assessed for travel (consult CCI Note 10/15 [Paintings — Considerations Prior to Travel](#)) and are in good condition before being wrapped (consult CCI Notes 10/6 [Condition Reporting — Paintings. Part I: Introduction](#) and 10/7 [Condition Reporting — Paintings. Part II: Examination Techniques and a Checklist](#)).

It is important that backing boards are installed on paintings (consult CCI Note 10/10 [Backing Boards for Paintings on Canvas](#)), especially before wrapping for travel.

If paintings have been framed and glazed, ensure that the recommended glazing is held sufficiently away from the paint surface by a spacer (consult CCI Note 10/8 [Framing a Painting](#)).

Some paintings will require special preparation or support before wrapping, due to their large size or weight, fragility or condition. If unsure about any special requirements, consult a conservator for advice.

Read this Note through completely before starting a wrapping project in order to determine which arrangements and materials should be chosen for a particular painting.

In order to ensure that the materials used for wrapping and packing are conditioned to the appropriate RH level, it is important to pack the painting while it is in an appropriate environment (consult CCI Note 10/4 [Environmental and Display Guidelines for Paintings](#)) and to store any hygroscopic (water vapour absorbing and releasing) materials used in the wrapping (such as cardboard) in that same environment for at least one day before wrapping and packing.

#### Materials required for wrapping:

- appropriate travel frame (if painting is unframed or if frame is fragile)
- low-tack tape for glass glazing, if present
- cushioned frame corner-covers (if required)
- packaging/carton sealing tape (this type of tape is usually easily removed without damaging the wrapping materials)
- scissors, utility knife and a straight cutting edge (e.g. a steel ruler)
- bubble wrap or thin, closed-cell foam sheet
- clear plastic sheet (Mylar or clean, uncoated polyethylene)
- rigid cardboard (or stiffer board, as necessary)
- marking pen

#### Wrapping a Framed Painting

A painting in good condition and in an adequate frame or travel frame (consult [Wrapping an Unframed Painting — Use of a Travel Frame](#)) or that has adequate edge-strips (consult CCI Note 10/8 [Framing a Painting](#)) can be wrapped in the manner described here.

If the depth of the frame or of the edge strips will not prevent wrapping materials from contacting the paint surface, secure the painting in a handling-travel-storage (HTS) frame before wrapping (consult [Wrapping an Unframed Painting — Use of a Travel Frame](#)).

1. If a painting's frame includes normal (non-laminated) glass glazing (and adequate spacers):
  - Consider replacing the glass with a museum-quality, anti-reflective laminated glass if the painting is larger than 1 m<sup>2</sup> (and if the frame is adequately strong) (Green et al. 2005). This is to avoid damage to the artwork from sharp glass pieces in case of breakage. Museum-quality, anti-reflective acrylic sheet is another option. Note that acrylic scratches easily and it, too, can break into sharp pieces on impact under certain rare conditions (Freemantle 2005).
  - Consider taping the outside surface of the non-laminated glass fully with strips of low-tack protective tape (following the glass manufacturer's directions regarding the surface) so that, if the glass breaks, the tape may hold shards in place that might puncture or otherwise damage the artwork. (Although, according to tests done by Green et al. [2005], damage to a painting was often

similar whether the glass was taped or not.) The tape should be carefully and gently removed as soon as possible after travel to avoid damaging the glass surface treatment or coating (and removed slowly, to avoid causing the glass to flex and rebound). Shipping breakable glass separately and reinstalling upon arrival at its destination is another option; however, this would involve more handling of the painting, which would pose associated risks.

2. If the corners of the frame are fragile but able to bear direct contact with cushioning material, make cushioned corner-covers to fit over them.
3. This third step may be optional if the painting will be adequately cushioned by other means inside a packing case. Cut a piece of air-bubble wrap (e.g. Bubble Wrap, AirCap) or a sheet of thin, flexible closed-cell foam (e.g. Microfoam, Volara) that is large enough to wrap completely around the painting and frame, leaving an overlap.
  - Lay this foam sheet or bubble wrap (bubble side up) on a clean flat surface.
4. Cut a piece of clear plastic sheet (polyethylene, 2 to 4 mil [50.8 to 101.6  $\mu\text{m}$ ], or Mylar) large enough to wrap completely around the painting, allowing for about an 8 cm (3 in.) overlap of the edges at the back.
  - Lay this plastic sheet on the bubble wrap or foam (if used) or on a clean, flat padded surface.
5. Cut a sheet of rigid cardboard to the exact outside dimensions of the front of the frame. To provide even greater protection, cut the cardboard larger than the frame, and then score and bend it so that it folds over the sides of the frame. Make sure the cardboard is rigid enough so that, when fitted over the frame, it will not sag and touch the surface of the painting. On a large painting, a stiffer material may be needed (e.g. multiwall cardboard). The cardboard will be held in place by the subsequent tight wrapping. This board over the front of the frame will help protect the painting from accidental blows to its surface. If the cardboard has been stored in an environment that is appropriate for the painting, it will add to the RH-moderating capacity of the painting's organic materials when sealed inside the plastic wrapping.
  - Lay the prepared cardboard over the plastic, front side down against the plastic.

Option: A second cardboard may be cut for the back of the painting. Furthermore, if both front and back cardboards are cut so that their folded edges overlap each other, this will make a box. This provides even more protection and will create flat edges around the painting that are easier to cushion inside a packing case or crate. Ensure that the painting will not shift within the box during handling and travel by adding non-abrasive material along any gaps between the frame of the painting and the cardboard. Make sure that the material cannot shift or slip and touch the painting. Mark which sides are the front and back, to aid those who will be unwrapping.

6. Position the framed or edge-stripped painting face down on the cardboard (Figure 1), ensuring that the painting's surface does not touch it.



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Figure 1. Framed painting to be positioned onto the cardboard and wrapped in Mylar or plastic, then sealed with tape. Layer of bubble wrap added for slight cushioning all around.

7. Position the back cardboard, if used, on the back of the painting. If the cardboard edges have been folded to overlap (Step 5, Option), position the front folded edges over the back ones, and tape the overlaps securely. Ensure that the painting cannot shift within the cardboard wrap.
8. Wrap the plastic, fairly tightly, around the painting and cardboard so that it overlaps itself on the backing board (or on the back cardboard, if used). Tape along the overlapping edges and along all of the other edges of the plastic with packaging or carton tape to create a good seal. (Carton tape can usually be removed later without ripping the plastic. Fold one end of the tape back on itself before applying. Pulling on this end will make it easier to remove the tape, without using cutting tools.) Ensure that nothing within this wrapping can shift.

9. Finally, wrap the air-bubble sheet or foam (from Step 3, if used) around the plastic-wrapped painting. Tape along all edges with packaging or carton tape to create a good seal.
10. Mark which sides of the wrapping are the front and back, to aid packing position and for those who will be unwrapping. Provide instructions for safely unpacking and unwrapping (and for re-wrapping, if necessary).

The wrapped painting is now ready to be carefully hand-carried locally by a trained person door-to-door (if weather conditions permit, and with the addition of thermal insulation if a temperature change is anticipated), or to be further cushioned and insulated in a suitable packing case for shipping (see [Bibliography](#) and [Further Reading](#); and in particular, Mecklenburg [1991] and Richard et al. [1991]).

### Wrapping an Unframed Painting — Use of a Travel Frame

A painting in good condition but without an adequately deep frame or without adequate edge-strips (consult CCI Note 10/8 [Framing a Painting](#)) can be protected by a travel frame before being wrapped and then cushioned. Once a painting is in a travel frame, as described below, follow the directions given in [Wrapping a Framed Painting](#).

A travel frame protects a frameless painting or a framed painting with a fragile frame. A travel frame also makes a painting stronger and more rigid, which reduces risk to the painting during handling or if it is accidentally dropped.

The sides of a travel frame should be deep enough so that a cover placed over the painting (or any wrapping material secured around the HTS frame) will touch the travel frame only, and not the painting.

A travel frame can be made from various materials but is usually made of wood.

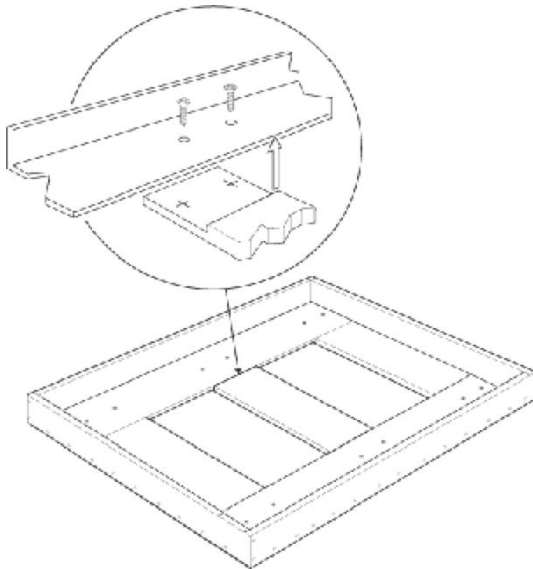
For a travel frame, the Canadian Conservation Institute (CCI) recommends using an HTS frame (Figures 2a and 2b) based on a design developed at the National Gallery of Canada. An HTS frame is suitable for paintings with or without frames, and is especially appropriate for acrylic paintings and other paintings whose surfaces are too fragile to be in any contact, even temporarily, with a travel frame. The HTS frame can also serve as a permanent storage frame because no material touches any of the paint surface.

**Please note** for paintings expected to travel internationally (including to the United States from Canada): If wood stock is used, the wood should be treated against pests and carry the approved marking according to the International Standard for Phytosanitary Measures No. 15 (ISPM 15-9) in order to avoid import and export of harmful pests (visit the [Canadian Food Inspection Agency](#) for more details). Guidelines for import and export of wood products may vary by country. To avoid most problems, the Canadian Conservation Institute suggests using plywood (a manufactured wood product) to make HTS and travel frames for travel outside of Canada.

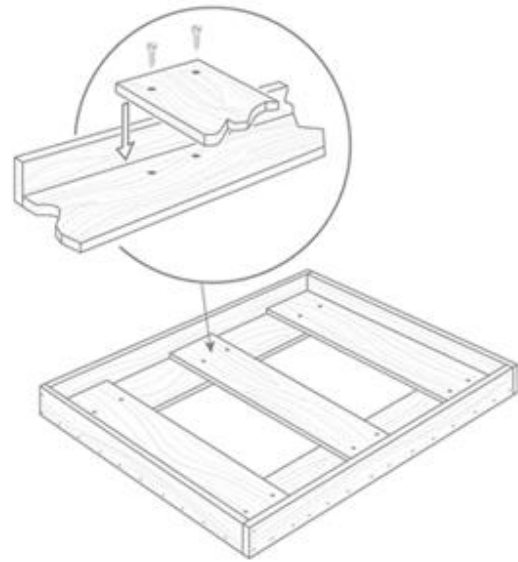
Simple mending plates can be used to attach a painting to an HTS frame. However, these plates have the disadvantage that the screws attaching them to the painting have to be loosened and tightened for each use. This subjects the painting to the risks involved with handling each time the plates are adjusted. Articulated fasteners, such as Oz Clips or similar hangers used at Tate in the United Kingdom and other art museums, have the advantage that they can be permanently attached to the back of an unframed painting's stretcher (or to its frame, if present) without requiring repeated loosening and retightening (Figure 3). They are used in closed position for display, and in open position for attaching the painting to an HTS frame. Taking screws repeatedly in and out of the same screw holes on the HTS frame will eventually render the holes incapable of holding the screws (especially, for example, during a travelling exhibition). Consider using threaded T-nut fasteners in the wood of an HTS frame to reduce wear on the wood.

When measuring for the HTS frame, allow adequate hand space between the sides of the painting and the travel frame in order to position, secure or remove the painting easily (Figure 4).

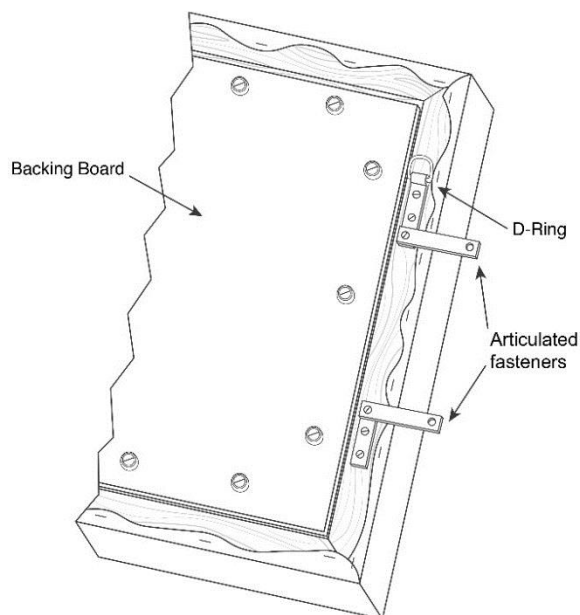




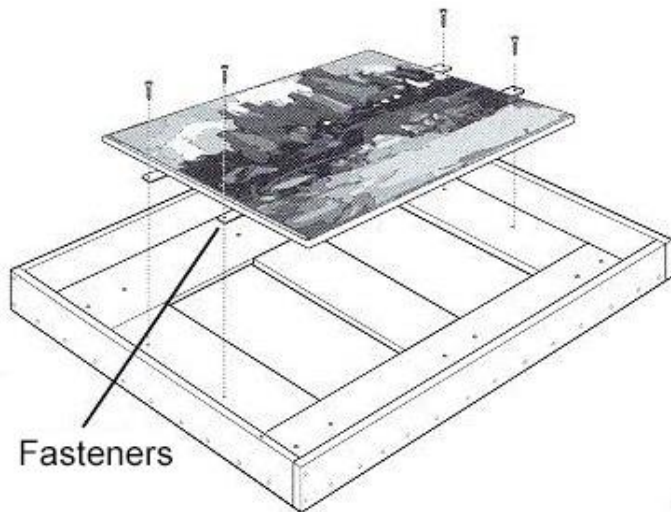
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Figure 2a. Construction detail of HTS frame showing lap joints (and thus a level surface inside).



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Figure 2b. Simple overlapping joints can be used if fasteners that are fixed to the painting are attached to the higher-level boards of the frame. (Blocks or spacer boards are required if using the lower-level boards to attach additional fasteners.)



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Figure 3. Articulated fasteners on a painting's stretcher (shown in open position). The upper fastener has an integral D-ring for hanging the painting for display.



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Figure 4. Positioning a painting with fasteners into an HTS frame. Larger paintings may require additional fasteners.

Once a painting is in an appropriate travel frame, wrap it as described previously (consult [Wrapping a Framed Painting](#)).

### The Wrapped Painting

Proceed with further packaging as necessary to protect the painting from any anticipated handling and shipping hazards (e.g. shock, vibration, punctures, wide temperature variations and compressive forces). Provide any special instructions for unpacking, etc.

Ensure that the final painting package during any transport and associated handling is:

- puncture- and dent-resistant, front, back and sides
- sealed against moisture and water infiltration
- cushioned to protect the painting from possible shocks during handling and transport
- insulated and in an air-conditioned vehicle to protect the painting from cold, extreme heat and quick changes in temperature
- restrained from shifting during transport—both the painting within its package, and the package in the vehicle

## Bibliography

Freemantle, Rosie. "[Glazing Over: A Review of Glazing Options for Works of Art on Paper](#)." *Tate Papers* 3 (Spring 2005).

Green, T., S. Hackney and R. Perry. "Breaking Glass: Perception and Risk." In *International Council of Museums – Committee for Conservation (ICOM-CC) 14th Triennial Meeting, The Hague, 12–16 September 2005, Preprints, Vol. II*. London, UK: James & James, 2005, pp. 632–638.

Mecklenburg, M., ed. "Art in Transit: Studies in the Transport of Paintings." In *Papers from the International Conference on the Packing and Transportation of Paintings, September 9–11, 1991, London, UK*. Washington, DC: National Gallery of Art, 1991.

## Further Reading

APA – The Engineered Wood Association. "Crating Fabrication." In *Materials Handling* (available as free PDF with registration from [http://www.apawood.org/level\\_c.cfm?content=pub\\_mat\\_libmain](http://www.apawood.org/level_c.cfm?content=pub_mat_libmain)). Tacoma, WA: APA – The Engineered Wood Association, 1995.

Booth, P., T. Green and C.L. Sitwell. "Moving Pictures." Seminar, 1984. *The International Journal of Museum Management and Curatorship* 4,1 (1985), pp. 41–52.

Canadian Food Inspection Agency. [Wood Packaging Imports: Import Policy](#), 2013.

CCI. [PadCAD: Cushion Design Software](#). Ottawa, ON: CCI, 1994.

CCI. [Making Triwall Containers](#). CCI Notes 1/4. Ottawa, ON: CCI, 1997.

ICOM Working Group on the Care of Works of Art in Transit. Various Papers.

e.g. Grimstad, K., ed. *ICOM-CC 8th Triennial Meeting, Sydney, Australia, 6–11 September 1987: Preprints, vol. II*. Los Angeles, CA: Getty Conservation Institute, 1987, pp. 583–619.

Grimstad, K., ed. *ICOM-CC 9th Triennial Meeting, Dresden, German Democratic Republic, 26–31 August 1990: Preprints, vol. I*. Los Angeles, CA: ICOM-CC, pp. 401–427.

Marcon, P. [Corner Pads for Double Case Packages](#). Ottawa, ON: CCI, 2011.

Marcon, P. [Six Steps to Safe Shipment](#). Ottawa, ON: CCI, 2011.

Richard, M., M. Mecklenburg and R. Merrill, eds. *Art in Transit Handbook for Packing and Transporting Paintings*. Washington, DC: National Gallery of Art, 1991.

## Suppliers

Note: The following information is provided only to assist the reader. Inclusion of a company name in this list does not in any way imply endorsement by the Canadian Conservation Institute.

### **Air bubble wrap:**

local packaging suppliers

### **Corrugated cardboard:**

local packaging suppliers

### **Gatorfoam board:**

local art or plastics suppliers

### **Microfoam (DuPont):**

local packaging suppliers, such as

[Canadian Paper & Packaging Company, Limited](#)

Tel.: (514) 333-4040

### **Articulated fasteners:**

#### **Oz clips:**

[Masterpak](#)

Tate gallery hanger:

Bruce McAllister, designer

[galleryequipment.com](#)

Available for online purchase as a [Hepworth hanger](#)

or contact [Tate Britain](#)

### **T-nut fasteners:**

local fastener suppliers

[Spaenaur Incorporated](#)

**Polyethylene film or sheet:**

local packaging suppliers; hardware stores, home improvement centres

A note about polyethylene film: Various densities of polyethylene are available (high [HDPE] to low [LDPE]). However, the essential requirements for wrapping purposes have to do with conformability, stretchability, strength and resistance to puncture and tearing.

Thin uncoated polyethylene can be found in many home improvement centres where it is sold as painter's plastic. Some polyethylene films have a greasy/dirty feel due to the presence of release agents and plasticizers on its surface. Make sure to use clean "uncoated" polyethylene for wrapping museum or gallery objects. (A quick test: adhesive tape should stick well to uncoated polyethylene.)