The "rolling moisture sandwich": a method for humidifying and flattening large groups of rolled paper materials

This article describes a technique used in the Northwestern University Libraries (NUL) conservation lab to quickly humidify and flatten large groups of rolled paper materials. This method allows us to flatten up to 100 rolled items in a single workday—a task that could take weeks with other humidification techniques.

Fig. 1. Conservation staff at NUL flattening rolled items with the rolling moisture sandwich.

NUL's Book & Paper Conservator Roger Williams learned this technique in a workshop at the XIVth Congress of the International Association of Book and Paper Conservators (IADA) in Warsaw, Poland. The workshop was conducted by Edith Greuter (Book and Paper Conservator at Erfgoed Leiden en Omstreken) and Alexandra Nederlof (Paper Conservator at Nederlof Papierrestauratie), who had adapted the method originally published in *Paper – Line – Light: The Preservation of Architectural Drawings and Photoreproductions from the Hans Scharoun Archive* by Eva Glück, Irene Brückle, and Eva-Maria Barkhofen (2012).

The method Roger learned at the IADA conference (which we lovingly call the "rolling moisture sandwich") compacts the humidification and flattening process and speeds things up

considerably. It combines a typical Gore-tex sandwich with a rolling action that encourages flattening. It is a dynamic and flexible technique that can be modified for various needs.

Materials

- A large working surface
- Two large cardboard rolling tubes (NUL uses tubes that are 39” in length and 4” in diameter)
- Polyester film (Mylar) cut to the height of the rolling tubes and the width of your working area (the bigger, the better!)
- Spunbound polyester (preferably Hollytex) cut slightly smaller than the polyester film
- Gore-tex or Tyvek cut to the size of your work surface
- Blotter, cut slightly smaller than your Gore-tex/Tyvek
- Water (deionized)
- A strong tape (packing tape works well)
- Painter’s tape or clamps
- Weights (small and large)
- Clamps (optional)
- Felts (optional)

Setup

- First, assemble your rolling materials. Attach the rolling tubes to either end of the Mylar and Hollytex with the packing tape. When rolling, the Hollytex should be on the outside of the roll (see fig. 2).
- Place the blotter on your working surface and dampen with deionized water. Clean up any extra water around the edges of the blotter.
- Place the Gore-tex/Tyvek over the damp blotter. This should be larger than the damp blotter to cover it completely. It can help to gently secure it to the table with painter’s tape or clamps.
- Unroll the Mylar/Hollytex over the Gore-tex/Tyvek. Large weights or clamps on either side can prevent the materials from rolling off your table. Allow the sandwich to prime for five minutes.

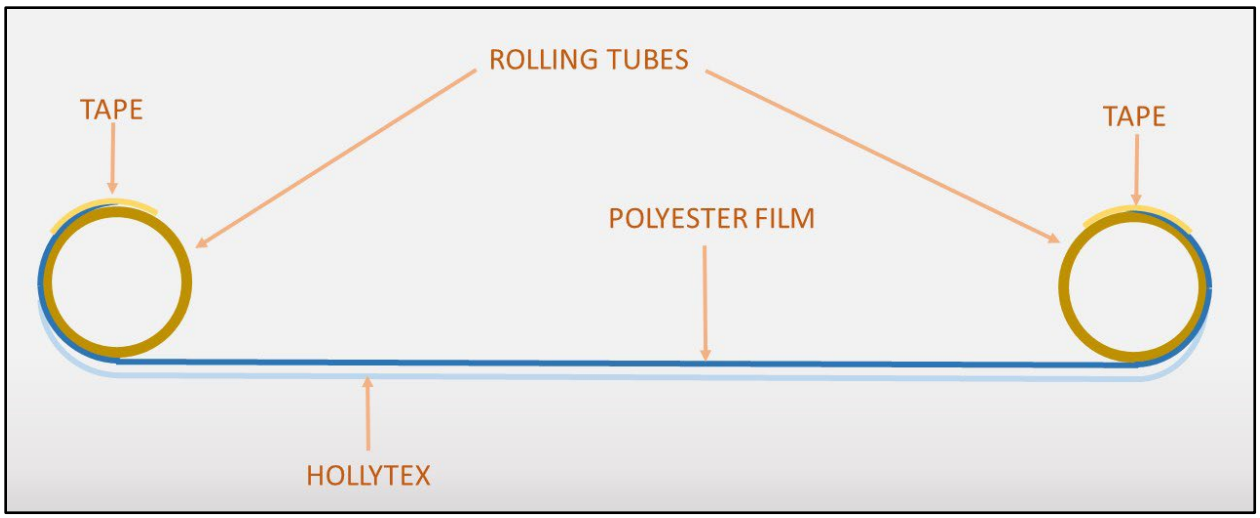

Fig. 2. Two carboard rolling tubes are attached to layers of Mylar and Hollytex. The Mylar serves to contain the moisture, while the Hollytex prevents buildup of static electricity.

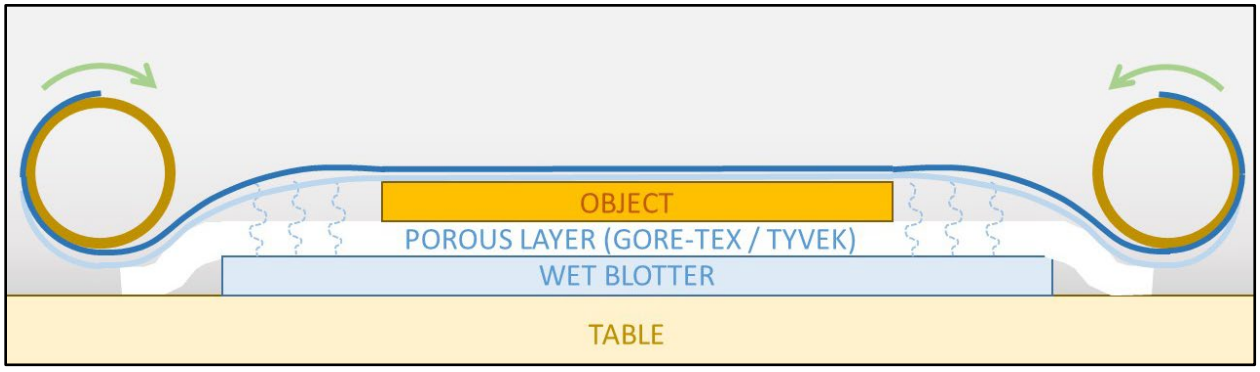

Fig. 3. The rolling materials force the object against the porous layer.

Using the rolling sandwich

The rolled collection item is placed onto the breathable membrane (Gore-tex/Tyvek). The rolling materials (Mylar and Hollytex) and tubes are used to gently unroll the item and sandwich it between the layers. This forces the item against the breathable membrane, exposing it to the water vapor seeping through. The polyester film over the item contains the moisture. The Hollytex prevents the item from sticking to the Mylar, which can generate static electricity.

Fig. 4. The NUL rolling moisture sandwich in action.

The tubes can be maneuvered from either side of the working space, rolling and unrolling the polyester and Hollytex to open up the chamber. Depending on the size of the sandwich and the size of the collection materials, multiple items can be humidified at a time. Weights or felts can be used to hold the sandwich in place and encourage flattening.

Where a typical humidification chamber has a large volume to fill with vapor, this tight sandwich has virtually none. Thin papers can humidify in under a minute. Thicker, more rigid paper can take up to 15 minutes. NUL has also found this system useful for flattening groups of folded items, as well.

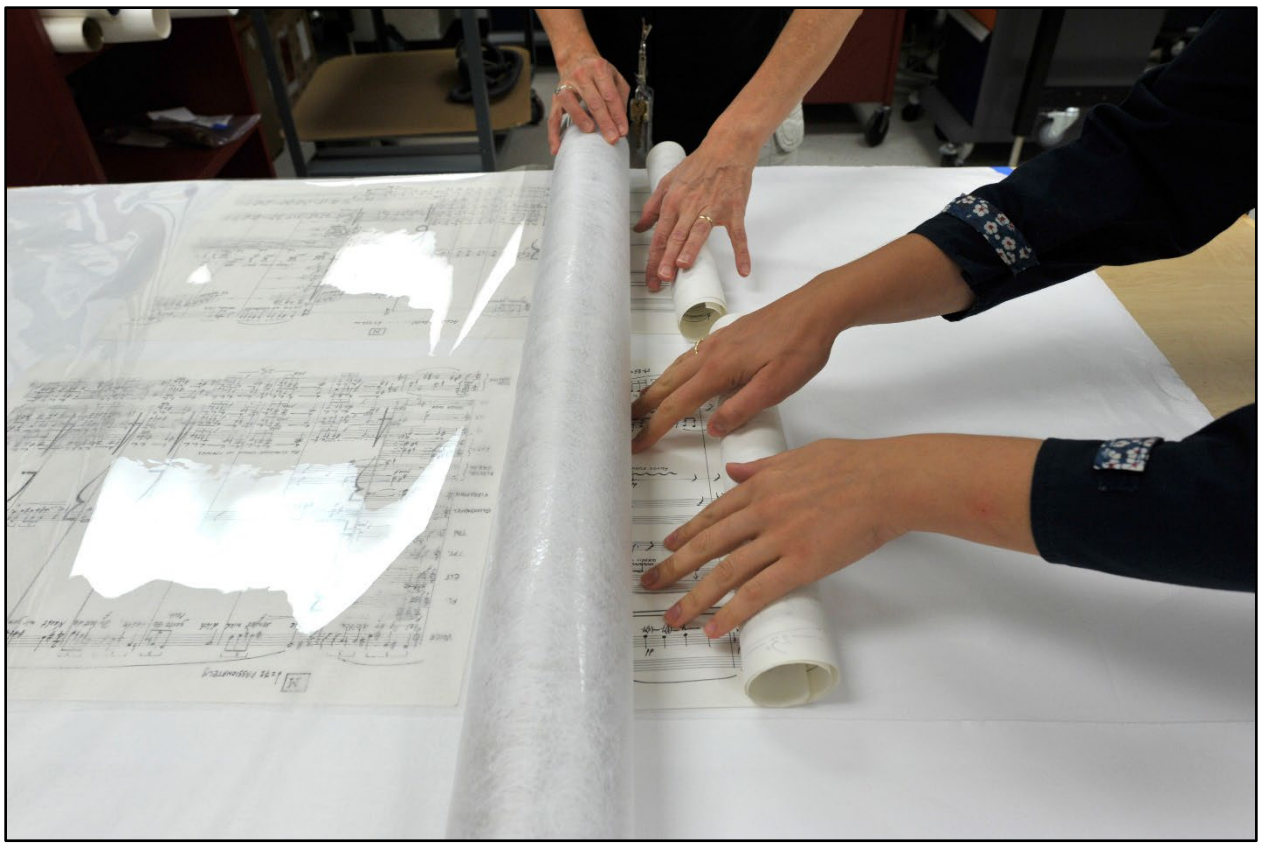

Fig. 5. The edge of the object is fed under the rolling tube, which is used to help flatten it against the porous layer.

After sufficient humidification, place the objects in a drying pack as usual. With large numbers of items being flattened, it's helpful to use identification flags in the drying pack to keep track of what's what.

The rolling moisture sandwich combines the humidification and flattening steps into one. And once you've set up your kit, it's easy to store away for future use!

The rolling double-moisture sandwich

For very stiff or thick collections materials, an additional moisture layer can be added to the rolling tubes, composed of dampened Tek-wipe and a breathable membrane (Gore-tex/Tyvek) (see fig. 6). This version applies moisture to either side of the object's surface.

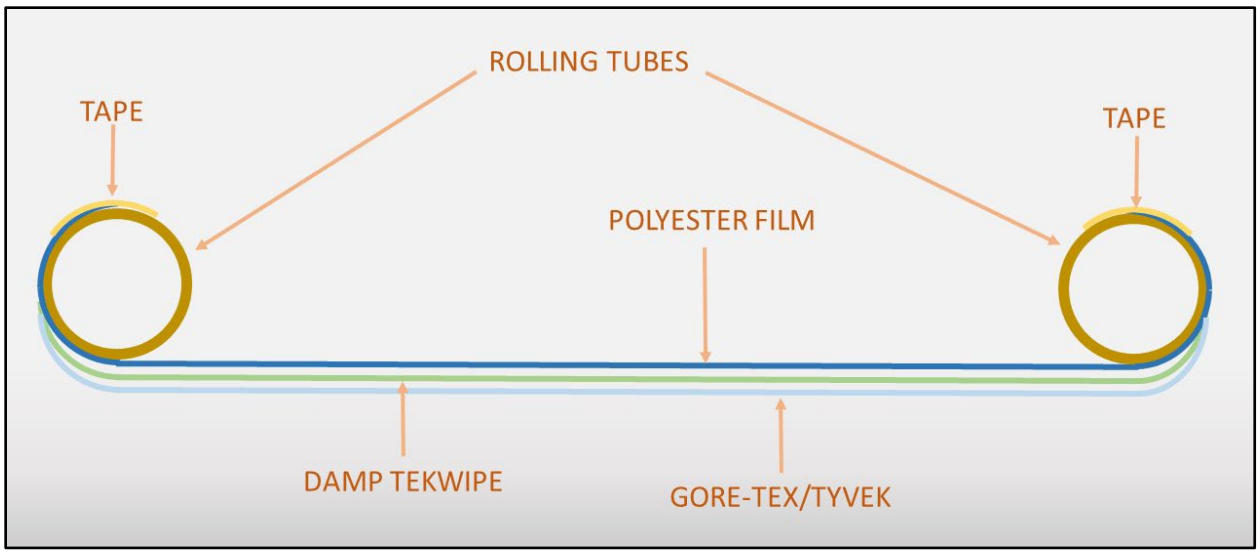

Fig. 6. The top layer of the double-moisture assembly.

References

Glück, Eva, Irene Brückle, and Eva-Maria Barkhofen. 2012. *Papier - Linie - Licht Konservierung von Architekturzeichnungen und Lichtpausen aus dem Hans-Scharoun-Archiv* ; [im Rahmen des Projekts "Architekturpläne des Hans-Scharoun-Archivs. Restaurierung und Digitalisierung einer umfangreichen Architekturplansammlung des 20. Jahrhunderts, April 2008 bis Dezember 2011] = *Paper - line - light*.

Greuter, Edith. 2019. Instruction card 8a: Making a moisture sandwich for flattening large format drawings. Erfgoed Leiden e.o.