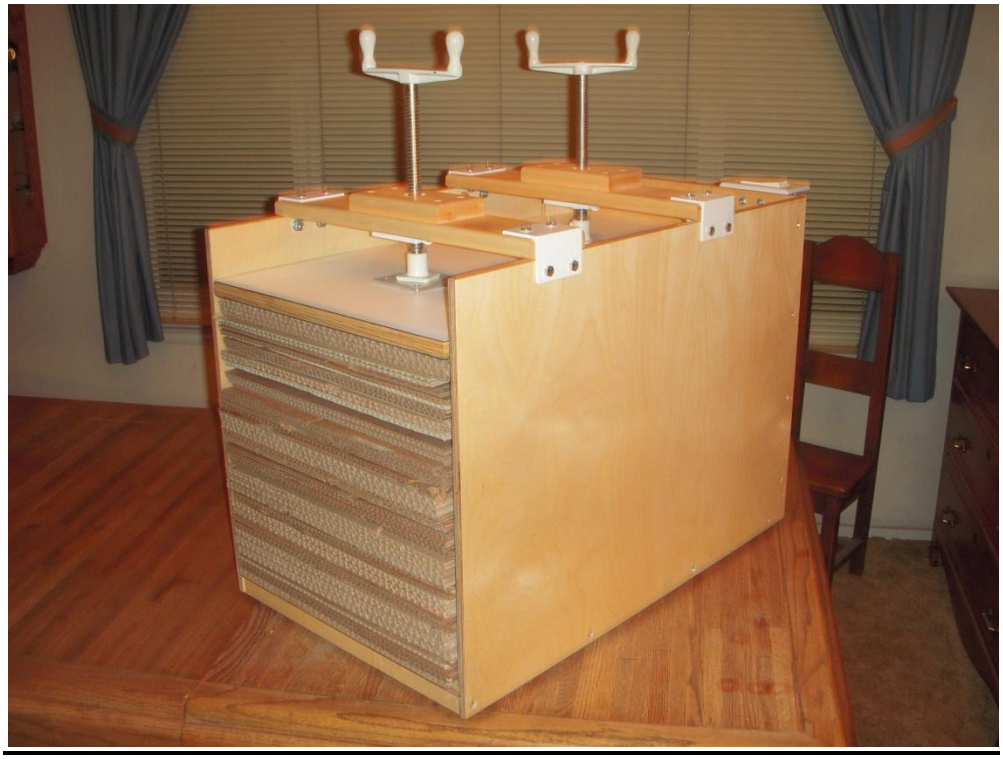
AffordableBindingEquipment.com

Papermaking Drying Box



This Papermaking Drying Box is meant for drying freshly-pressed, handmade paper after it has been couched onto felts and then transferred to blotters. This drying is done on double-wall cardboard, with forced air running the full length of the cardboard, wicking the moisture from the blotters and expelling the moisture-laden air out the front. The clamp screws on top keep the paper and cardboard flat during the drying process. It also keeps the paper from shrinking, as it is mechanically kept from doing so.

The box is about 18" wide and 29-1/2" front to back, including the fan. You **must** have about 3" behind the fan for air circulation, so make sure you have about 33" from the front of the box to the wall. It can also be placed sideways, but it will be more difficult to load the box.

What you need to provide:

You will need about 70 sheets of 16" x 24" *double-wall* cardboard, with the tubes in the cardboard running the long direction. It is important this size of cardboard is used, as smaller sizes won't force the air through the tubes (the air will go around the edges) and larger sizes won't fit. This cardboard can be obtained from any appliance store, like refrigerator, stove or washer/dryer boxes. These are heavy duty and perfect for this use. The larger the tubes in the cardboard, the better, so get the thickest double-wall cardboard you can find. Get what you can, and if you find better later, you can always switch out the thinner cardboard.

Make sure the sections you use from the cardboard boxes are not dented or bent or torn in any way, as this will hamper air flow through the cardboard. Only use double-wall, not single-wall, as single-wall is not stiff enough to pick up and place in the box, and the holes are usually too small to allow air to flow through freely. Because of the size of these large boxes and

transportation difficulties, you might need to bring a box knife to cut the box up at the store so you can get it into your car. Just cut them larger in size than needed (bring a template to make this faster), then cut them to size when you get home. Make sure you cut them as closely to 16" x 24" as possible, as this is the size needed for the drying box ***and***, most importantly, that the tubes run the 24" direction.

Do NOT use the cardboard that comes from China, as it has very little structural strength and will probably fall apart when it gets wet, and it's very easy to poke holes in it. You can tell the difference by the color. Chinese cardboard has a yellowish tint and folds/punctures very easily. US cardboard is the usual cardboard brown and very stiff.

When cutting the cardboard, use a very sharp knife and make sure you don't dent into the cardboard at the cut, and thus close off the tubes.

How many sheets you will need will depend on how thick your blotters are and the thickness of your cardboard. The drying box height has 15" allotted for cardboard. It is imperative that you always fill the box with cardboard ***every time*** it's used, no matter how many sheets of paper you are drying, even if it's one sheet. The fan needs all that opening in the cardboard so it does not heat up and potentially burn out. Restrict the fan, and it will shut off. The 70 sheets give you enough to fill the box completely and maybe some extra. You may only need 35 or 40 to fill it with the multiple blotters in place. But always fill the box completely every time you use it.

You can also buy cardboard from Uline:
https://www.uline.com/Product/Detail/S-14368

These are 24x48 double wall, and you will get 3-16x24 out of each sheet. I called them and was told the tubes run the 24" direction. You have to buy 25 sheets, so you will get 75 pieces out of what you buy. Yes, this cardboard is expensive and shipping is too. But if you aren't into dumpster diving, then you will need to buy it and I could not find a cheaper place to get it. This will give you extras, if for some reason some sheets get damaged along the way. Also, you may have some damaged in transit so the more sheets, the better.

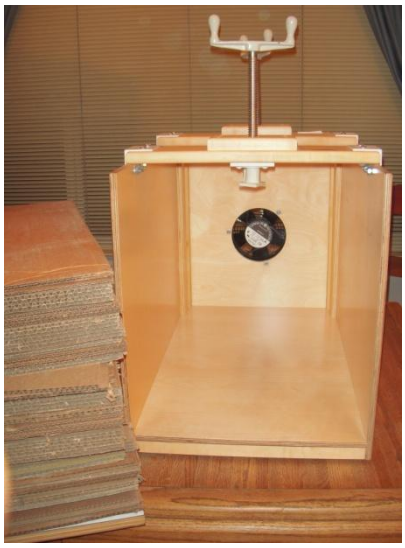
This cardboard has been tested by the person who ordered this drying box and she said it works very well and stands up to the pressure in the box.

You will need blotters. Cotton linters work great for this purpose.

http://carriagehousepaper.com/cotton-linters-2nd-cut

These are 1/16" thick. They can be cut in half and trimmed, to provide you with one complete layer (2 pieces). For every layer of cardboard, you will need 2 blotters. Whatever you use, the larger the size, the better, so the stack will be stable and not wobbly. Plus, the larger the surface area, the better they will wick the water from the paper. Again, these are expensive, but with care, will last a long time. And when they are worn out, you can make paper from them!

Blotter paper can also be bought at an art supply store or online. Experience will tell you which is the best to use. You might ask this question on an internet papermaking forum.



If you need an extension cord for the fan, *only use a 3-wire grounded cord*, as this setup needs to have the grounded wire because of the metal fan and switch box.

Instructions

1. Take one piece of double-strength cardboard and put it in the bottom of the press. This keeps moisture off the bottom of the press.

2. Take another sheet of cardboard and put one sheet of blotter on the cardboard.

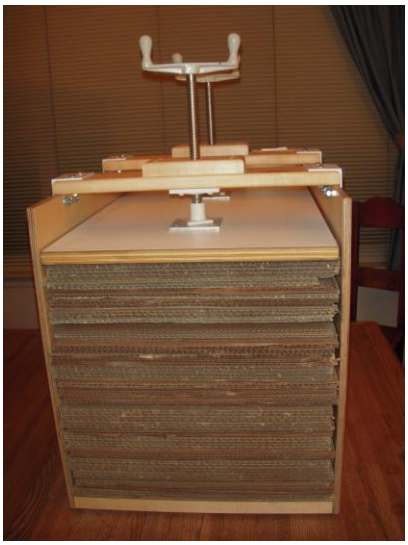
3. Carefully peel your wet paper from your pressed felt and center on the blotter. This wet paper is very fragile and needs to be handled with care. If you can't tease up a corner by hand, use a kitchen spatula to get one corner up. If you have pressed the felts in a press, this will be less of an issue. If the size of the paper is smaller, then you can get multiple pieces of paper on each blotter. Make sure these are centered. Do not put wet pulp onto the blotter. This will probably ruin the blotter and the cardboard. This drying box is meant to dry pressed paper, not freshly-couched paper.

Depending on the size of your paper, you may be able to get multiple sheets on one piece of blotter. The more water you get out before you put it in the drying box, the shorter your drying time will be.

4. Place another piece of blotter over the wet paper.

5. Place this sandwich into the drying box.

6. Repeat, starting at number 2, placing sheet after sheet of cardboard/blotter/wet paper/blotter layers, until either you run out of wet paper or you have filled the box. Experience will tell you how many sheets of cardboard will fill the box with blotters and paper. It depends on how thick your cardboard is and how thick your blotters and paper are. If you run out of paper before you fill the box, remember to fill the rest of the space with cardboard until you get to 15" high.



7. When you have reached about 15" in height, place one more piece of cardboard on top with no blotters or paper.

8. Then place the Formica-covered platen on top of the stack with the aluminum pads up, and push it all the way to the back. This seals the 3" gap in the back so all the air will be forced through the cardboard.

9. Tighten the screws down onto the top platen and start pressing until you feel slight resistance. Don't over tighten or you could potentially crush your cardboard once it gets wet from the blotters. Another problem with too much pressure, is that the

ribs of the cardboard will imprint a design into your paper. Experience will tell you how much you can tighten it. You will need to tighten again during the drying time, as the paper will shrink in thickness as it dries out. Experience will let you know when and how often you may need to do this.

10. Turn on the fan. Experience will tell you how long it will take for your paper to dry to your satisfaction. In tests with the jack paper press I build and this drying box used in combination, it took 16 hours to get the paper bone dry. I have no idea how long yours will take, because there are many factors involved: how thick your cardboard is, how large the holes are in the cardboard, what type of blotters you use, how wet the paper is you put in the box, what the humidity/temperature level is in your house. Always press as much water out of the pulp as you can before you put it in the drying box. If you go from the felts right to the blotter, then it will take longer to dry and soaking wet paper may damage both your expensive blotters and cardboard.

Notes:

Very Important: Make sure you have about *3" clearance behind the fan* (not just the box) for air circulation. **If you shove this box up against the wall, you will probably burn up the fan**.

Also important, you need an extension cord, **use only a 3-wire cord with a ground**, as the switch box and fan need this added protection.

This box is to be used indoors, as it is *not* weather-proof, nor is the electrical waterproof. It is light enough for 1 person to move around (without the cardboard and upper platen in place), but it's awkward, and it's a lot easier with two.

If you want a faster drying time, you will need another complete set of blotters, which you can switch out with the wet ones, sometime in the drying process. When this will be the most advantageous, only experience with the drying box will tell.

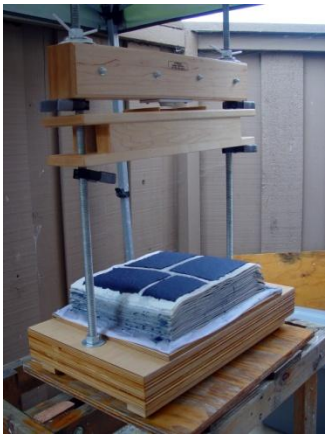
Make sure your cardboard does not extend into the 3" space in the back but stops at the lip provided. If you use 16" wide cardboard, then this will not be an issue.

If you are only drying a few papers, stack up cardboard so they will end up near the middle of the box where there is the most air flow in front of the fan.

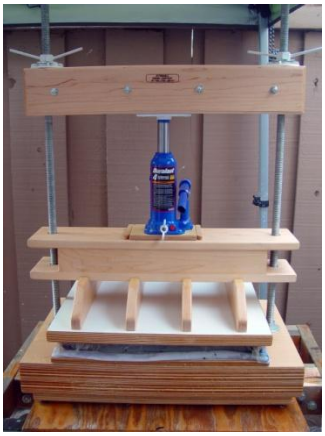
The commercial fan puts out 200 cubic feet of air per minute and all that goes through the cardboard. You can actually feel a breeze coming out the front. This is more than adequate to dry your paper. As mentioned above, I have no idea how long this box will take with your paper, since I can't control all the variables mentioned above. So when you start out, you might want to check every few hours to see how long it takes. No sense in wasting electricity and time, when a little checking can avoid that.

There is a video on the website that gives a visual demonstration of what is in these instructions. The below pictures show the press in use from pulp to dried paper. These pictures are from the woman who ordered these and whose idea it was to build them.

Post ready for pressing

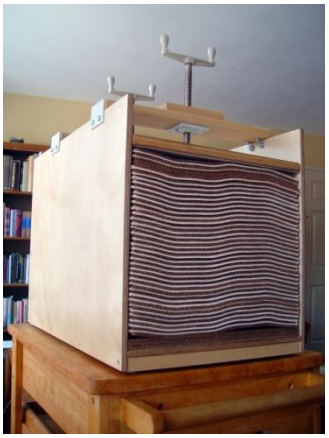


Post in press



After pressing

Felts ready for drying



Felts in drying box

Finished paper