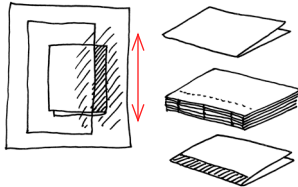
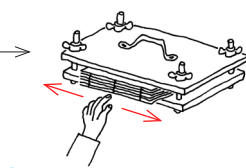


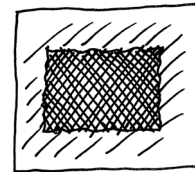
1. Note: throughout this process, you must NOT open the book for any reason. The completed book should only be opened after allowing it to dry overnight in the book press. After the signatures have been stitched together, attach the front and back end sheets. These are single fold sheets, same size as book when folded, usually slightly heavier than book pages and a different color. Make sure grain is running with the direction of the spine.



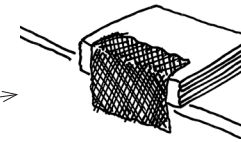
2. The end sheets are attached to the book by a strip of glue, about 1/4 inch, near the fold. To apply glue, place end sheet between two straight pieces of paper. Hold the top paper and apply glue evenly with your finger, extending motion over the masking papers. Carefully remove masks and attach end sheets to book.



3. Wait a few minutes for the end sheet glue to dry. Place the book in a book press or under heavy weight, with the spine sticking out 1/8 inch. Apply glue to spine (PVA or Elmers). Work the glue in between the signatures until there are no visible gaps. Work the loose threads into the spine. Let dry 10-15 minutes and apply a second coat. Let dry.



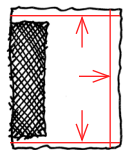
4. Cut a piece of mull (or other thin cotton fabric) big enough to wrap around spine of book and extend about 1 inch on front and back. Height is about 3/4 inch shorter than book. Place on newsprint paper and apply PVA glue with cheap 2" brush. Glue will go through but that's OK.



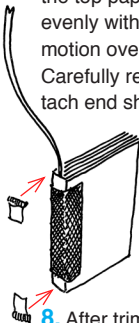
5. Place book on the edge of the table and apply the mull to the front of the book and the spine. Press mull and spread it evenly. Hold book up with one hand and wrap mull around the back. Slowly press mull evenly onto the book to eliminate air pockets and excess glue. Wait a minute or so, then repeat the process until smooth and almost dry. Leave to dry on edge of table.



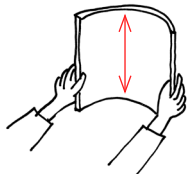
6. Do not open the book. Wait for the book to dry, possibly for several hours or overnight. The next step will be to mark the cover end sheet for trimming.



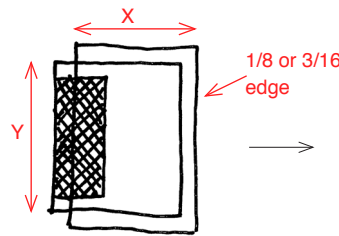
7. Mark the top end sheet with a soft pencil for the top, bottom, and fore edge cuts. This dimensions will be the final page size of your book. Add arrows to make sure you will cut these sides and NOT the spine. Trim the book using the guillotine. IMPORTANT: do not use the guillotine unless you have been properly trained in its operation. It's a beautiful but dangerous machine. Please respect it.



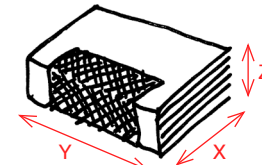
8. After trimming, you can add head bands to the top and bottom of the spine. Choose your color to complement or contrast the color of the end sheets or the cover. The decorative part of the head bands should hang over the signature folds. If desired, you can also add a bookmark, a thin satin ribbon attached to either the spine (under the head band) or inside between pages.



9. When the final size of the book is determined, measure and cut the hard backs. Use chip board (thicknesses vary) and find the direction of the grain by bending the board in front of you left to right, turning it and bending it again. When easy to bend, the grain is in the vertical direction. Cut boards so that this direction matches the length of the spine.



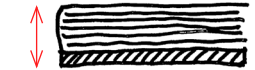
10. The boards are cut so that a small edge will extend and protect the pages from wear. The extra edge, also called turn-in, should be between 1/8 and 3/16 of an inch, but it can vary depending on many factors such as the size of book and other aesthetic considerations.



11. For convenience, we will refer to the three dimensions of the book by the three letters x, y, z.

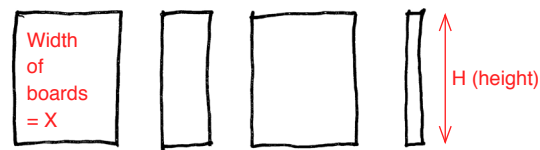
3. Have sharp scissors, bone folder, and a rag ready at your side.
4. Lay out your boards nearby.
5. Another person must be next to you and ready to help.

Lining piece width: $Z + 1$ board



12. On the spine, the board is typically much thinner. You can use bristol board, card stock or other thin board such as cereal box board. For this type of spine, the width of the "lining piece" will be the thickness of the book plus one thickness of the back board that's being used. Today, you often see books where the lining piece is the same thickness as the backs – very rigid – but traditionally the lining piece is thin, soft, and can be rounded to follow the spine.

H: Height of boards. $Y + 3/8$ if using thick boards (3/32)

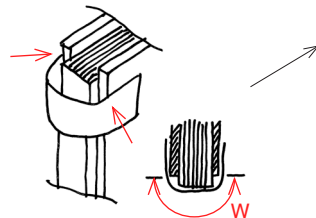


H: Height of boards. $Y + 1/4$ if using thin boards (1/16)

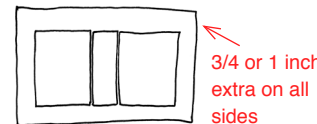
13. Four pieces are needed: two hard backs, a spacer, and the lining piece. They are all the same height. The width of the backs is the same as the trimmed book. The backs will move to the fore edge by 1/8 or 3/16. The spacer will be used temporarily to place

the two backs down in the exact position, then removed and the lining piece will be placed in the remaining gap.

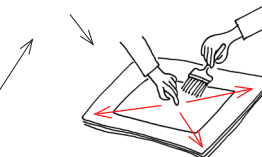
14. Sandwich the book between the two hard backs so that they extend on top edge, fore edge, and bottom edge.



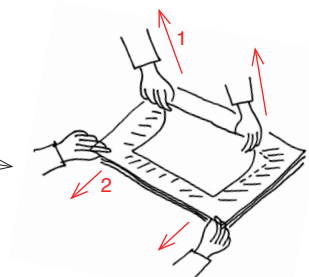
15. Wrap a piece of paper around the spine and mark the distance around and between the edges of the board. This distance (W) plus 1/8 (if using 3/32" thick board) will be the width of your spacer. Add 3/16 instead if you are using 1/16" thick boards.



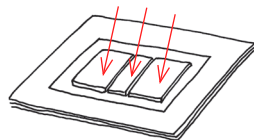
16. Make sure your boards are cut square and are identical. Use a utility knife and a metal ruler on a cutting surface. Place the boards and the spacer on the bookbinding cloth or paper that you will use. Cloth is about 1 inch wider on all sides. You are ready to glue the boards. Prepare your work flow: 1. Place down several sheets of larger newsprint paper. 2. Prepare a container with PVA glue, thinned with a bit of water, and a cheap 2" brush.



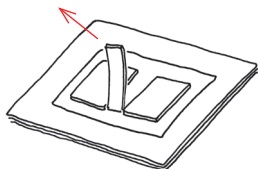
17. Apply glue with brush moving ONLY from the center towards the edges. Hold paper down with one or two fingers. Do not move brush parallel to edges. Extend brush strokes beyond bookbinding cloth/paper. This motion keeps the paper in place. If the paper moves, the glue will go under and mess it up. Move quickly as the glue will start to dry and the paper will want to curl. Keep cool and don't panic if paper moves a bit.



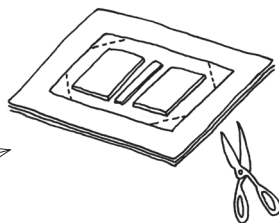
18. Clean your hands and lift the cloth/paper by the top corners. Your partner must now quickly remove the dirty newsprint sheet from underneath. Quickly put cloth on clean sheet, with a motion hugging the edge of the table if necessary to prevent the cloth or paper from curling and rolling.



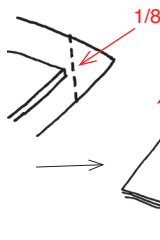
19. Moving fast, place the first board on the paper, leaving an inch around the corner. Press board down briefly to set it in place. Add the spacer but don't press, add second board and press. All should align at top.



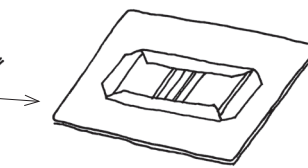
20. Remove spacer and place lining piece in the center gap, moving it quickly to align it and center it. Press firmly.



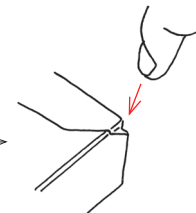
21. Lift paper and cut the four corners with sharp scissors, leaving a 45 degree cut. Leave about 1/8" material next to the board corners.



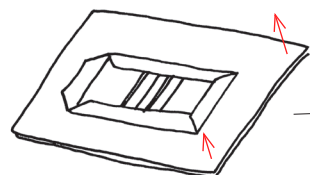
22. The glue will have started to dry. Hold down the boards and turn top edge in by grabbing and wrapping one or two sheets of newsprint towards you. Hold the edge of the sheets and press down quickly with the bone folder.



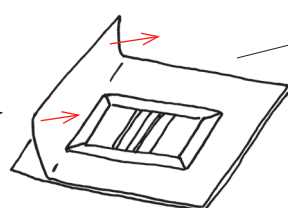
23. Repeat the step with the opposite edge of the paper. Remember to keep everything in the same place, there will be extra glue that gets on the newsprint but it's OK as long as you don't move the covers.



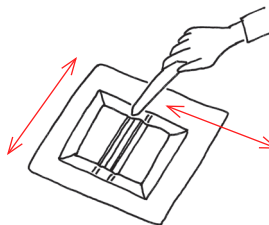
24. Use your thumbnail to tuck down the binding cloth/paper at the corner of the boards, making sure the chip board corners get covered by the fabric.



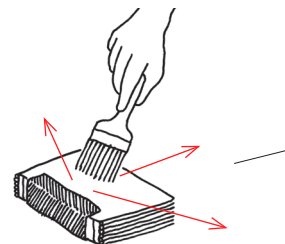
25. Now fold the right flap using the same technique: grab newsprint, bring over, hold and press down with bone folder.



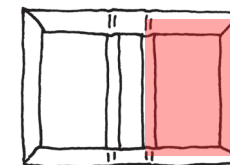
26. Fold the left flap.



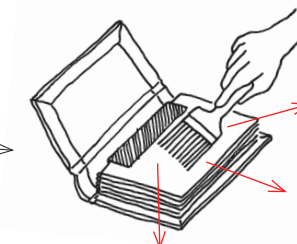
27. Place a couple of sheets of newsprint on top of covers – the picture is meant to show the boards under the paper. Press down with the bone folder on top of the flaps, moving across quickly. Press down also on the "hinges" formed between the boards and the lining piece, and around the edges of the boards. The paper protects the cover from becoming shiny from the rubbing of the bone folder. Flip cover and press down as before using the paper as protection. Use the bone folder's side and press back and forth with the palm of your hand to get rid of air bubbles. Press on hinges again.



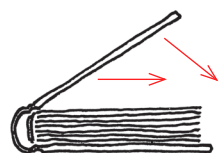
28. Check the cover to see if it fits the book properly with the correct edges and to make sure that the hinges work properly. Now you are ready for blueing the book itself to the hard backs. Prepare your work surface. Use brush to spread glue on top of the first end sheet, moving from the middle of the spine and out towards the edges, extend your strokes out. DO NOT put glue on the spine.



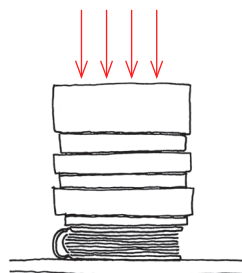
29. Clean your hands. Grab the book, flip it and place it on the right cover. You have 1-2 seconds of time to shift it around before it starts setting. You will have rehearsed this step earlier without glue (dry run) to familiarize yourself with the correct spot you need to aim for – the edge of the spine should be slightly to the right of the lining piece, with part of the hinge slightly visible. Press firmly. DO NOT attempt to clean up any extra glue on the edges at this point.



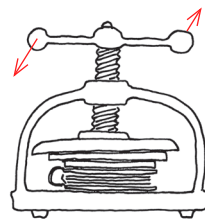
30. Put glue on top of the other end sheet, with a similar outward motion from spine center towards the edges and the corners.



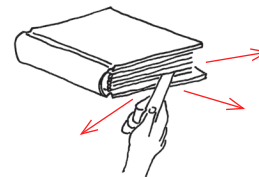
31. Flip cover over the end sheet holding the book firmly. Flip the whole book to adjust the edges if necessary, but only if it is still possible. If not, DO NOT attempt to lift the cover, it's too late, it's good enough. Press firmly and DO NOT open the book! I repeat: do not open the book now.



32. Place the book in a book press or under stiff, heavy books. Place a sheet of plain paper on top and under the covers, just in case glue sips through. Make sure the weights are properly aligned to provide even pressure. Leave book to dry overnight.



33. The best device to finish the book is a book press, which provides even and strong pressure, especially in the middle. Leave book to dry overnight.



34. The next day, after you take the book out of the press, the pages near the covers and the end pages might have glue that holds them together. DO NOT attempt to separate the pages by opening the covers or opening the pages. Instead use a blunt blade such as a tableware knife or letter opener to slowly free the pages one by one.



DO NOT use an X-acto knife or other sharp cutting tool as these will slice the pages at weird angles. There is a special thin bookbinding knife that's used to cut sheets in half that is OK for this purpose.

You did it!
Enjoy your book ;-)
Write, read,
& draw!



Afterword

Books come in all shapes, sizes, and styles, but their basic construction has not changed in centuries. It's one of those timeless designs like the wheel, the scissors, the bicycle, the umbrella: try as you might, there just isn't that much improvement that one can make. But it makes a difference if you know how they are put together and if you can make one yourself with your own hands. The next step: to write your own personal book. 📖

P.T. San Francisco, April 2013