

STACK CUTTING, PREPARING THE STACK

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Introduction:

Definition: The process of arranging several pieces of stock into a stack for cutting multiple objects with one pattern.

Description:

1. The method of preparing a stack involves covering each piece of stock (blank) with cellophane tape, gluing the pieces together, and taping all the pieces of the stack together with more cellophane tape.
2. This process is used for stacking 1/4" and 1/8" stock, usually hardwood. I usually stack 2 pieces of 1/4" stock and 3 pieces of 1/8" stock. More pieces can be added to the stack as desired. The maximum dimension I have used was 8 x 10 inch pieces of stock.

Reasons:

1. No vibration: If the interior of the stack pieces are not fastened together, each individual piece will vibrate as the stack is being cut. This leads to breakage. Using this method, the stack acts as one piece and there are no vibrations to contend with.
2. Reduced fuzzies: If the stack pieces are not held together, fuzzies will appear on the bottom side of each piece of the stack. When the stack acts as one piece, the fuzzies appear only on the bottom piece. Less time required to remove the fuzzies.
3. Easier clean-up: When finished cutting, the cut piece emerges from the stack with all pieces of the stack still stuck together, not several pieces. This makes it easier to remove the blade marks from the outside edges and repair inside cutting mistakes or errors with the unit as one piece rather than several. The whole piece is less fragile and easier to handle.

Procedure:

Stock Preparation:

1. Presand stock: If the stock is not smooth on both sides, you cannot successfully stack the stock. Sand stock as needed. I purchase my stock sanded both sides.
2. Cut to Size: Do not try to stack stock that is not similar in size. The result will be a loose stack and could affect the cutting. Cut each piece of stock to be used in the stack to the same size. Lightly sand the edges to remove fuzzies.
3. Dry fit pieces: All the pieces of the stack should cup the same direction and fit closely without any gaps. Put the pieces together with the end grain up so you can see the grain line in the end of the wood. Rearrange the pieces until the grains are in the same direction and the pieces fit snugly to one another with no gaps.
4. Mark tops: lay the pieces with the cup side facing down. Mark the top of each piece and arrange the pieces into stack.

1st Taping:

To be honest, all cellophane tape will leave some residue. The thinner the tape, the less residue. The tape I recommend is Scott's 2" Sealing tape. It is 1.6 mils thick. If the tape does not list the thickness, do not buy it. The residue can be removed with a light sanding of the cutting with 150 grit paper. The residue rolls off in small balls and looks like sand dust. You may have to manually remove some residue that gets caught inside a cutting.

(Procedure is for stacking 3 pieces)

1. Stack blank pieces with the tops up.
2. Remove the top 2 blanks and set them aside.
3. Apply tape with the grain to the top side of the bottom piece. Cover the entire top side of the bottom piece and DO NOT overlap the tape and make sure there are NO wrinkles in the tape or foreign objects under the tape. If the blank is not wide enough for x number of row of tape without going over the edge, then reduce the number of rows by one. i.e.: if the blank is 5" wide, you cannot put 3 rows of 2" tape without overlapping the tape and having to trim an inch off the side. Therefore, evenly space 2 rows of tape. Cut off any tape that extends over the ends of the blank. I use a small utility knife. DO NOT wrap around to the other side of the blank.
4. Position the middle blank with the bottom side up. Apply the tape to the middle blank the same as previously done with the bottom blank. Trim off the excess tape.
5. Turn the middle blank over so that its top side is up. Apply tape to the middle blank using the same procedure as in step 3 and trim off any excess on the ends of the blank.
6. Select the top blank and position it with its bottom side up. Apply tape to the blank as before and trim off any excess.

Glue Up:

The glue stick can be found in any school supply section of any store. I prefer the larger model with the disappearing color. It goes on purple and then turns clear. It is easier to see where I have applied it. In this step, glue is only applied to one of the mating surfaces. If you find that you want a stronger bond, apply the glue to both mating surfaces.

For the glue up, you will need approximately 4 clamps. One clamp for each corner. If the stack is over 5 inches long, then I add more clamps and clamp the middle edges. (The number of clamps depends upon the size of the blanks) I prefer spring clamps and most of my glue ups, I use a 4 inch clamp with rubber noses and handles that can be purchased at almost any hardware store.

1. Using a piece of used 150(about) grit sand paper, gently wipe the taped surface of each piece. This will help smooth the tape and remove some of the shine from the tape. It will help the glue hold better.
2. Position the blanks with the bottom blank's top up.
3. Apply the glue stick to the taped area. It should be completely covered.
4. Set the middle blank on the bottom blank with its top side up.
5. Apply the glue stick to the taped area of the middle top blank.
6. Place the top blank on top of the middle blank.
7. Squeeze the blanks together and turn them on their sides. Align all edges so that they are all even.
8. Apply clamp to each corner. Recheck the edges and readjust as needed.

9. Set the stack aside and let the glue to cure for a minimum of 15 minutes.

Second Taping:

The second taping is used to hold the stack together. The tape should be applied in the opposite direction to the first, against the grain. The tape should be applied tightly and wrap around the stack from the back to the front and to the back. Therefore when you cut the tape, make sure it is long enough. I normally apply a minimum of 3 pieces of tape in this step. More pieces can be used if needed. It depends upon the size of the stack. The tape can overlap.

1. With the clamps ON, the 1st piece of tape is to be applied between them around the middle of the stack. If there is not room for the tape between the clamps, reposition the clamps. Position the middle of the piece of tape in the middle of the top blank and apply. Fold the edges of the tape over the edges of the top, down the sides and on to the bottom. The tape should be tight and have no wrinkles. If there are wrinkles, remove the tape and reapply.
2. Remove one pair of clamps from one end. Align the second piece of tape with the edge of the stack and starting in the middle, apply as above keeping the tape as tight as possible. Make sure to squeeze the end of the stack together while applying this piece of tape if needed. It is ok if the tape overlaps the first piece.
3. If the second pieces of tape did not overlap the first, apply another piece of tape over the blank area. The other set of clamps should still be on.
4. Remove the second set of clamps. Align a piece of tape with the raw edge and apply as before.
5. During the second taping, the bottom does not always get completely covered. As a matter of preference, I cover the vacant areas of the bottom with tape also. I have found, this helps reduce the fuzzes.

Pattern Application:

There are many ways to apply the pattern to the stack. From what I read and hear, most people use spray adhesive to attach the pattern. For me, the spray doesn't hold, creates a big mess, and is bad for the environment and the scroller. I have found that adhesive backed paper (Sometimes referred to as peel and stick.) works the best. I recommend the "StickerPaper" from Staples.

1. Wipe the top of the stack with used sand paper.
2. Size the pattern to fit the stack. If needed, apply centering marks to the pattern.
3. If needed, Apply centering marks to the top of the stack.
4. Loosen a piece of the backing on the pattern. The adhesive backed paper comes with a backing that has cut lines for easy removal. You can slightly fold the pattern at one of these cut lines to break the line apart.
5. Position the pattern on the stack. While holding down the pattern, peel the part of the backing off that was loosened in step 4.
6. Apply the glue exposed portion of the pattern.
7. Lift the unexposed backing and peel it off. Apply the rest of the pattern.
8. Apply another layer of tape over the pattern in the opposite direction of the second layer. It is all right if the tape overlaps, but there should be no wrinkles. Wrinkles will distort the pattern when cutting. This layer will help to protect the pattern.
9. The stack is ready to cut.

Unstacking:

After the cutting is finished, the stacked pieces are still together. Now is a good time to do the clean up sanding to remove any blade marks from the edges, etc.

Separate:

To separate the stacked pieces, I use a knife. The knife is an exacto knife with a long triangular dull blade. The unstacking can be related to cutting a peach in half. You start the edge of the knife on the skin of the peach and rotate the peach in your hand. As you rotate the peach, you pull the knife deeper and deeper into the peach until you reach the pit. Separating the stacked pieces is the same. Find a place where you can see where the 2 pieces meet on the edge of the stack. Gently insert the edge of the knife between the 2 sections and start rotating the piece. As you rotate the piece, gently pull the knife deeper. Some areas will be tough and some will be soft. As you pull the knife blade around the stack, you may hear cracking sounds. This is the glue separating. The biggest thing is do not force the knife.

1. Find a place between 2 pieces of the stack to insert the edge of the knife blade. Do not use the point.
2. Slowly rotate the blade around the stack. Keep the blade in the joint between the 2 pieces of the stack.
3. As the glue separates, insert the blade deeper. Keep rotating until the blade is at maximum depth all the way around. Normally, the pieces will separate before now.
4. If the blade is at max and the pieces have not separated, find places where the wood is thick and slightly twist the knife blade. You may have to do this in several spots. As you were rotating the stack, one or two spots may have seemed harder to pull the knife through. These spots are usually the places where a little twist is needed.
5. Remember, go slow and do not force.
6. NOTE: if the pieces do not come apart or you are afraid of breakage, try putting the stack under a heating pad, set on high, for a maximum of 5 minutes.

Remove tap:

1. Gently insert the knife blade between the tape and the wood and lift up on the tape.
2. Gently work the tape free with your fingers until it is removed. Do NOT pull the tape. Work loose a bit at a time. Pulling the tape will break weak areas in the cutting.
3. Use the knife to help in removal of small pieces of tape left behind.
4. Lightly sand the pieces to remove the tape residue.