

In Search of Perfect Diamonds and Beyond

Zigzags, Diamonds or Diamond Border patterns can be a striking addition to a segment turning. If you do it right, the result is sheer perfection. If you don't, It's awful. Here are some points to help you do it the right way.

1. It all starts with the design. Here are some thoughts to consider.

Increasing the strip cutting angle makes the design taller. Decreasing the angle makes it shorter.

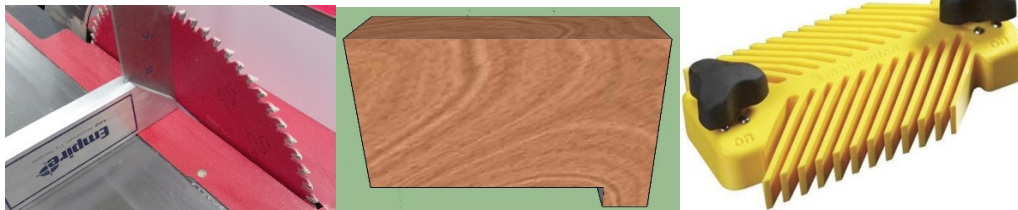
The width of the pattern is determined by the slice width. One half segment size is the slice width you want to use. Since all the strips will be glued together, you need to add half the kerf of the saw blade to the strip width. The Segmented Project Planner's report makes this adjustment for you. However, consider that you're going to have a hard time matching up all those slices when you glue the final ring together; so maybe you want to plan your design with spacers in between each of the snowflake patterns. Think about it.

Generally, the width of the pieces making up the lamination board are going to be 1/8" to 1/4" in width. Very large designs could stand larger, but you won't get away with much smaller. Decreasing the amount of material in these pieces makes the pattern smaller.

Widening the outermost pieces of the lamination board will make the resulting diamond take up less space in the resulting design unit. For strip cutting angles less than 45 degrees, the effect will mostly be horizontal. For larger angles, the effect moves toward the vertical.

If your goal is to create a snowflake pattern, realize that you will be cutting away or throwing away 30% or more of the vertical height of your diamond. So, it makes sense to make the diamond taller than you need to fill the segment space.

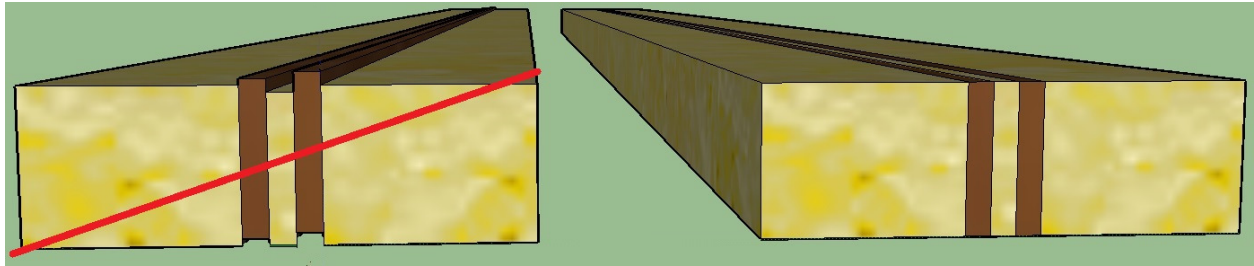
2. The saw blade must be perpendicular through all sawing operations. A table saw, with a good blade beats all comers for getting a smooth, straight cut. Use a push stick/block to ensure your stock stays against the fence and against the table top. You can make the simplest kind in a matter of moments from a short piece of 2" by 4" or 1" by 4" (6" to 8" long). Nothing fancy is required. Just a straight edge and a sacrificial hook at the back end to push with. Use a featherboard to also help ensure the stock stays against the fence. The Magswitch universal featherboard does a fine job.



3. Make sure all your stock is straight, constant in thickness, and has sides that are cut at 90 degrees.



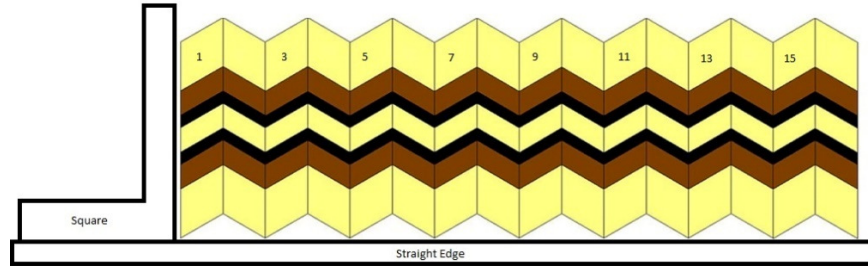
4. Approximate measurements are not acceptable if you expect the outcome to match your plan.
5. When assembling/gluing the lamination board, take care to ensure all the layers in the board match up to the same vertical position. This allows you to surface plane the lamination board with a minimum loss of material. Also, while the glue is still pliable, clean off all squeezed out glue.



6. Use a stop block, when sawing your strips, to ensure all are of a consistent width.



7. Use a gluing jig when assembling/gluing the zigzag. It needs a straight edge along the bottom where all the strip points can rest. One end of the jig needs to have a vertical member to ensure all strips are perpendicular. Glue up the whole zigzag at once. Make sure all points touch the straight edge along the bottom of the jig and make sure all strips lie flat against the face of the jig.



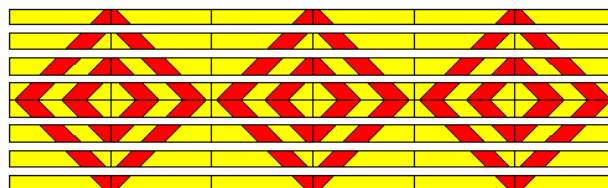
8. When you cut off the tips from the zigzag board, make sure the amount you cut off is the same for both top and bottom cuts. This ensures the center of the board matches the center of the zigzag pattern.

9. After your zigzag board's last trim pass, and before changing anything on the table saw, cut a relatively thin piece of material (1/16 - 1/8 inch). This generates a copy of the size of your trimmed zigzag board. Measure and calculate the board width and set the saw accordingly so you can split the board exactly in half. You can ensure a perfect split of the board by cutting a small notch in the thin piece you just cut and turning it over and checking against the blade. Adjust until the notch exactly matches the saw kerf when examined from both sides. Now, confidently cut the zigzag board in half. When you slide one half of the cut pieces against the other, your diamond shape will form, and all should match perfectly. And if you take one of the 2 halves, and flip it end for end, it will still match.

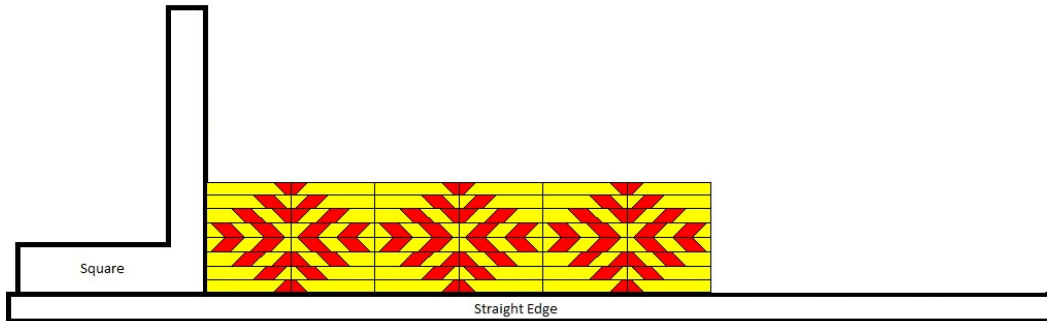


10. If your desired end point was diamonds, then you're done except for gluing the 2 halves together. Use your glue jig again to ensure that everything is straight when you clamp it together.

11. Continuing in the direction of the diamond border pattern, set the saw for something like 1/8" slices. Remember that some of those slices must slice the diamond itself or you won't have the snowflake effect. Use the push block and the featherboard to hold the stock firmly against the fence and firmly down on the table top so that all the pieces will be uniform in thickness. Being rather thin, these slices will be tender, so be careful.



12. Flip all the slices to form the snowflake pattern and use the glue jig to glue them together. We suggest you glue them up as 2 sets. One for the top half and one for the bottom half. That way you can take advantage of the right-angle piece on the edge of your glue jig to keep all the slices aligned vertically. Take care to ensure that every piece lies flat on the table top as you apply the clamps.



13 Viola!



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