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Hi there,

This document is for businesses or community groups that want to contribute to fighting the COVID-19 crisis by making aerosol boxes for doctors and nurses. You do not need manufacturing equipment or experience to order the parts for these boxes and make them yourselves.

Thanks to the free release of the design (<https://sites.google.com/view/aerosolbox/design>) by Dr. Hsien Yung Lai we have been able to build and donate boxes to our regional health system in Michigan. We made some modifications to increase sturdiness of the box and increased the arm hole size.

Here is what to do:

1. Contact your local health administrators and confirm that they would like you to supply boxes.
2. Purchase acrylic sheet at 0.220" gauge. It is commonly sold in 4'x4' sheets, or 4'x8' sheets. You can find it at Menards or Home Depot but we reached out to Amerilux directly.
3. Make sure you know you need 3 sheets of 4'x4' to make 4 boxes.
4. Follow the cutting diagrams included in this pack to cut the sheets into the parts you need.
 - a. Amerilux cut the parts for us when we asked, so ask your supplier too.
 - b. Cut 2 'B' sheets for every 'A' sheet.
5. Assemble the parts and glue them together using an acrylic glue. We used Weld-on 3.
 - a. You don't need to make a jig to speed up the process, but if you do it will save you a lot of time. We made 4 jigs and 2 people could turn out 8 boxes in about 40 minutes.
 - b. Use a small syringe to inject the acrylic glue where the two parts are touching. Capillary action will draw the glue into the join.
 - c. If you are not using a jig then please follow the steps laid out in this document to assemble a box on a flat surface.

If you have any questions, I would be happy to support you, please get in touch.

Good luck!

Ben Simmons

CEO, Highland Plastics Inc.

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Credit: <https://sites.google.com/view/aerosolbox/design>

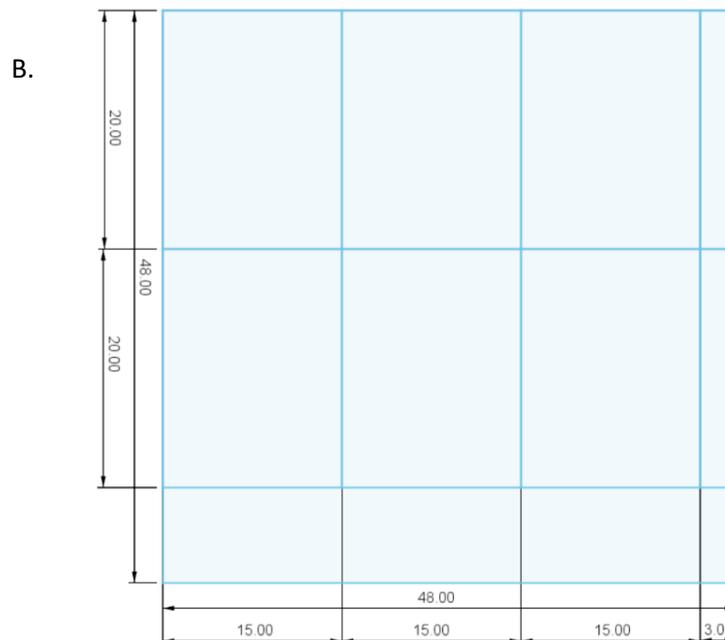
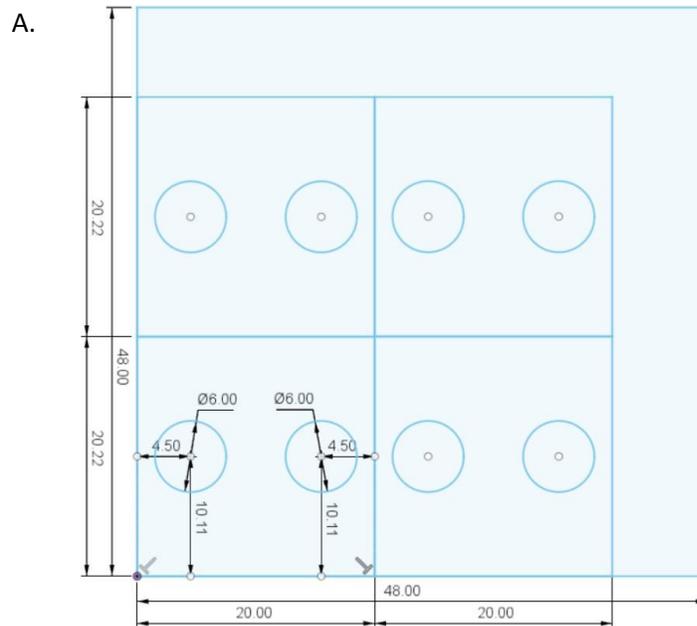
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Sheet Cutting Instructions

Supply this diagram to your sheet supplier and ask them to cut the sheets for you if you do not want to do it yourself.

- Material: Clear acrylic
- Sheet dimensions: 4' X 4' X .22"
- Cut 2 'B' sheets for every one 'A' sheet (makes 4 boxes total). All dimensions in inches.



Credit: <https://sites.google.com/view/aerosolbox/design>

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Assembly instructions using a jig

Our team here constructed several jigs to allow us to build the boxes uniformly. Here is how they worked:

- 1) We built a simple frame and bought three clamps per frame.



- 2) Using the clamps, position all the parts so that they are in the right position. Do not glue them yet. You can use masking tape if needed to hold the shape of the box together.



- 3) Using a medical syringe (because of the fine tip) apply Weld-on or another acrylic adhesive to all the joints and let capillary action pull it into the gap between the sheets. Use your hands to make sure the sheets are in the right position when the glue is setting.



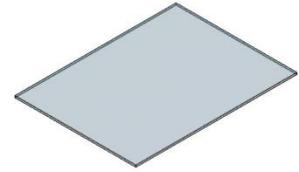
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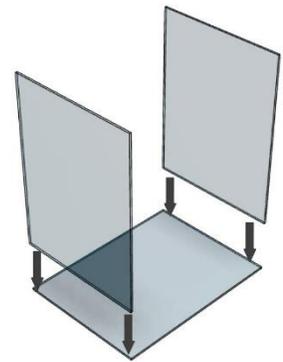
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Assembly instructions (no jig)

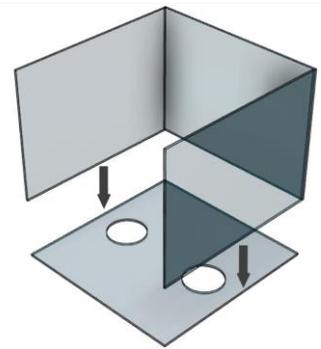
- 1) Lay one of the 15" by 20" panels on a flat surface



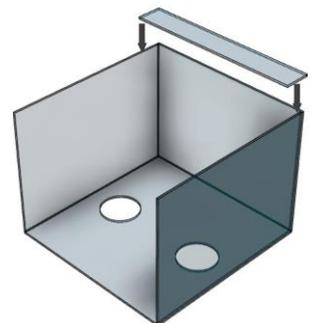
- 2) One-by-one place and then glue two 15" by 20" panels so that they rest upon the panel you placed in step 1. We recommend using a medical syringe and Weld-on 3. Let capillary action pull the Weld-on into the join and hold it there for a few minutes until it is firm.



- 3) When it is firm, rotate the piece you just made and lay it on the piece with the arm holes cut out. The piece with the arm holes should be wide enough that it covers all the edges of the piece you made in steps 1 and 2. Glue all the joins as in the step above.



- 4) When that is dry, lay the final piece on top so that it adds some stability to the structure. This final piece can be the thin panel from the edge of sheet B, or you can cut a thicker one from sheet A if you desire. Glue it carefully with Weld-on so as not to drip down the sheet.



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