6-Foot Semi-Offset Topper Frank McKiernan (K00283179)

Aim of the Project

This project I intend to fabricate a functioning topper that works and is the same or similar to the design I come up with.

Background

• To optimise the best outcome at the end of the project, to get the correct materials and for it to be strong enough and to be cost effective.



Abbey 6foot topper (example)

For my project I have decided to fabricate a 6-foot semi offset topper, I am making a topper as there is a need for one at home, so I thought it was the perfect opportunity to try out my fabrication skills and fabricate a topper. I looked around at various toppers to see different designs and to find out what would work best, the ones that caught my eye was the Abbey, Malone and Belmac toppers. I took different measurements off the different toppers and put them together to create my own topper.

Objectives

- Design my own topper and create cutting list.
- Purchase materials needed.
- Start fabricating in January.
- Finish fabricating before the end date.
- Test out topper, make sure it runs smoothly (no rattles/ vibrations).
- Galvanize topper in Shannonside galvanizing.
- Bring topper home to be put to use.

CUTTING LIST

3"box 6foot (x1) 3x2" box 82" (x2) 3x2" box 6foot (x1) 2" box 68" (x2) 2" box 11" (x2) <u>3mm</u> sheet 30"x70" (x1) 3mm sheet 38"x70" (x1) <u>3mm</u> sheet 28"x 12.5" (x2) <u>10mm</u> plate 11" (x2) & 14" (x2) & 6" (x2) 1" angle iron 68" (x1) C- channel 4"x 6" (x4) M16x60 bolts&locknuts (x6) M12x60 bolts&locknuts (x8) Comer topper gearbox (x1) Topper rotor (x1) Topper blades + bolts(x2) Topper a-frame (x1) Topper skids (x2)

My Cutting list

 I purchased all the steel in Par Weld Athlone, and some materials I recycled from home like the Gearbox, A-Frame and Skids. For top too cor des my I us top the I us top but

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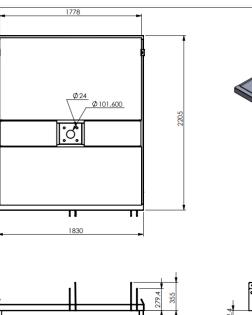
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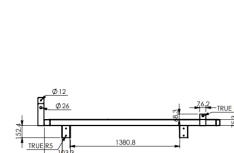
Design Work

For my design I got a few ideas off other toppers like, Abbey, Belmac, Major, and I took combined some ideas together to come up with my own. I drew a rough design by hand, and I then transferred my design to SolidWorks.

I used 3-inch box for the front of the topper for extra strength and 3x2 box for the sides and back of the frame.

I used 3mm sheets for the top, most toppers have folded sheets for strength, but I went for flat sheets with angle iron underneath for strength, this way was cheaper and does the same job as if it was folded.





SolidWorks Drawings



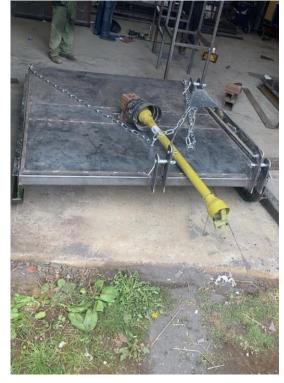
Selection of photos throughout the project

Conclusion

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To conclude, I am happy with how the topper turned out, it met the requirements I needed to meet and it's not too heavy or too light and operates as it should. After testing, I had to change the supports for the linkage as the link arms were hitting the support, other than that it makes a clean cut. Galvanizing Is the better option over painting as it is cheaper and will last a lifetime. Throughout the project I have learned a lot about welding and general fabricating works, and my welding has improved immensely. Overall, this project has been successful, and I am happy with how it went.





Finished product (before galvanizing)



First test cutting grass (before galvanizing