Conclusion

Though our Rankine Cycle project didn’t turn out the way we wanted it to, we still learned a lot from the experience of attempting it. We learned that MIG welding was nobody’s strong suit, we learned that having more access to the concept lab on campus would be more beneficial and would have allowed to maybe make a greater effort on our boiler, and we learned that starting our project earlier in the semester would have given us more time, maybe even enough time to complete the project correctly.

Building our boiler taught us a lot also. We learned that soldering the pipe fittings on the boiler would have been a better idea for us because of our lack of welding expertise. Another idea we thought would have worked to fix the leaks around the pipe fittings on our boiler is filling them with silicon caulk, which would have required less skill in putting on the leaks than welding or soldering. We also thought that if we had tapped and dyed the fittings into the boiler steam drum wall, we would not have had any leaks in the system either.

While we were able to complete a very good generator, we still saw some areas that we could improve in after it was completed. We saw that our stator could have had more split rings on it to increase the speed at which the generator turned. We also had a lackluster brushes design that didn’t hold the wires against the stator well enough, so we thought it would have also been better if we would have 3D-printed off a brushes holder for the generator.

Finally, when we made our firebox for our Rankine Cycle, the box that would hold the fireball, we made some bad decisions when building that as well. We didn’t use any rebar or other type of concrete reinforcement to strengthen the walls of the box, so it broke to pieces when we tried to remove the wooden forms from it. We also thought that making it out of steel would have been better as well.

In closing, we gave this Rankine Cycle project our best. Each member played a valuable role in the designing, building and testing our boiler system. Unfortunately, with the lack of time we were able to have in the concept lab and the little amount of technical skill we had, we were unable to make a quality and working model of the Rankine Cycle. This experience has taught us all a lot and we hope to use this new knowledge we’ve gained to maybe give this project another try next semester.