Project Objective
Design a small scale drum screen for small towns and rural areas that can filter one million gallons per day of wastewater debris.

Design
Important Specifications:
- Entire assembly is 3.6ft x 3.6ft x 2.83 ft
- Flow velocity through drum filter is \( \sim 1.5 \text{ ft/s} \)
- Filter perforation hole size is 3mm in diameter
- Drum filter is made from propyl panel
- Drum filter frame and main components are made from A-36 steel

Prototype Testing
Setup:

Procedure:
1. Ensure all connections are watertight then turn on system
2. Wait until the flow has achieved a steady state condition
3. Measure initial head loss
4. Take initial pressure readings
5. Divide mock debris into equal sized containers
6. At 5 second intervals, dump each container into the flow
7. Measure headloss
8. Record the time it takes the drum to remove all the solids and record it in the table

Results
Unfortunately, due to inclement weather and lack of adequate time for testing, only a few tests were able to be run on our drum screen. For those tests, our drum screen filtered out 100% of the introduced debris within sixty seconds.