

### General tips:

- When welding, set the temperature of the welder to 600 degrees by turning the knob at the bottom.
- Tack before welding with PVC rods.
- Use the goose-neck bit for the welder to weld PVC rods onto tacked surfaces.

Plate Settlers→ the plate settlers are located at the top of the sedimentation tank (upper half and their purpose is to serve as the final step in the sedimentation process)

1. In AguaClara's Google Drive, find "Plate Settlers Area Corrected.xlsx" and use the measurements for all 34 plates' measurements, highlighted in green.
2. The numbering of the plate settlers area corresponds from the largest (starting in the middle) to the smallest plate (at the end of the rod)
3. Use Clear 1/16 inch acrylic polycarbonate sheets (48" by 96") for the plate settlers
4. Fall 2016 team made a plate settlers jig to cut the sheets but using the jump sheer in the back also worked well (ask Paul to open the door to get the machine in the back)

NOTE: Due to cumulative error in aligning the spacers to the plates, you might have to take one of the plates out. For Fall 2016, one 12th plate was taken out to fit everything- meaning that it has 33 plates, instead of 34.

5. Cut roughly 280 spacers with a length of 2.3 cm at a 60 degree angle to the horizontal
6. Align all 34 plates and cut the 8 holes needed for assembly (The Fall 2016 team had used the machine shop's mill and had Paul help drill all holes after labeling all 8 of them onto the largest plate. We drew a centerline for each plate and aligned them in that manner from smallest to largest area).
7. For assembling the plate settlers and spacers onto the 8 rods, you need at least 3 people. Doing it with 2 will seem okay in the beginning but on your 5th plate, you will realize that it is disastrous.
8. Put nuts onto all 8 rods to have one end not loose and put in plates from the smallest to largest to smallest. (17 to 1 and 1 to 17).
9. Please pay attention to the spacers rotation and make sure that the spacers are aligned with the plate settlers
10. After assembly, put them into the sedimentation tank and make sure that it fits.

### Sedimentation Tank

1. Make a 30 degree cut in the 7 foot tall corrugated pipe
2. Cut the jet reverser, sides of the sedimentation tank, and supports
3. Water test the tank to make sure it is watertight

Steps for ensuring watertightness:

- Melt the welds
- Apply PVC glue to leakage areas

### Entrance Tank

1. Cut the walls and base of the tank according to the dimensions in **figure shown below**
2. Weld the walls together using an **L as shown below**

- a. Start with the base and weld a wall onto the base
  - b. Continue to weld each wall onto the base and to the adjacent walls
3. Test for watertightness
 

If not watertight:

  - Apply PVC glue to leakage areas
4. Cut a PVC “L” and a PVC sheet to create a spacer for where the pole support will go (it does not matter which side the spacer goes on) **as shown below**
  - **NOTE: the “4 by 4” pole support is actually 3.5” by 3.5” not 4” by 4” as the name would suggest**
5. Use a 3-inch hole saw to drill the bottom of the entrance tank for the placement of the LFOM connector. Use a 2.25-inch hole saw to drill the bottom of the entrance tank adjacent to the 3-inch hole for the entrance pipe to the entrance tank. Leave ample room for the float to sit on the opposite side of the tank.
6. Obtain a 3 inch (inner diameter) straight socket-connect. Cut a ring off of a 3 inch (outer diameter) pipe. Glue the ring to the inside of the socket-connect near the middle.
7. Glue the socket-connect flesh with the bottom of the entrance tank where the 3-inch hole for the LFOM is. Then, water test. If not watertight, tack and weld the connector to the tank in order to ensure watertightness.
8. Attach the entrance tank to the pole support by bolting it.

#### Linear Flow Orifice Meter (LFOM)

1. Cut a 3 inch pipe to the height of the entrance tank.
2. Measure the distance from the bottom of the inside of the entrance tank to the ring glued inside of the socket-connect. Measure the same distance from the bottom of the 3 inch pipe you cut in step 1. Mark it. This is the “baseline”.
3. In Google Drive go to: AguaClara Team → RESEARCH → 1 LPS AguaClara Plant → Spring 2017 → LFOM template and open the AutoCAD drawing of the LFOM template
4. Print the template out and attach it to the 3 inch pipe. Make sure the bottom of the template is flesh with the “baseline”.
5. Drill the holes as shown by the template using a  $\frac{3}{8}$  inch drill bit. The holes should be 1 cm apart vertically.
6. Fit the LFOM in the socket-connect glued to the entrance tank.