

Fabrication

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The Fabrication team develops fabrication methods that are useful at AguaClara construction sites, while being feasible and economical. We research the requirements for our tasks, select appropriate design criteria, and come to recommendations for plant parts and construction techniques. We integrate our ideas into the overall plant and help future plants be built more easily and at less cost, with several beneficial features.

The Fabrication Team was created in the Spring 2011 semester to solve some of the problems of constructing plant parts on-site in Honduras. One goal of AguaClara is to empower Hondurans to be able to build the plant, and the Fabrication team works to make that easier. We work on better methods for drilling, cutting, and fitting parts, as well as improving designs to make fabrication simpler. We also work on several entrance tank problems, such as designing a trash rack for large debris and an overflow weir so that water can bypass the plant without turning off the transmission line. We also look into connections between PVC pipes for the inlet manifold. Our approach to these tasks has been to brainstorm and come up with many possible solutions, then evaluate which ideas are feasible for the Hondurans. Then we build prototypes to test our solutions and make recommendations for future plants.

During the Spring 2015 Semester, the Fabrication sub-team is addressing four separate projects. The first is the development and testing of the weir system, which is oriented towards use in the plant as a way to adjust flow rate through the plant. The development of the weir system and the creation of a scale model were the biggest accomplishments of last semester's Fabrication team. Along with this project, the Fabrication is designing a large-float valve to be used to join and regulate flow from the storage tank to the first main tank in the AguaClara plant. In addition, the team is looking to create a DOM sensor and a flocculation probe to be used in AguaClara plants.

The DOM sensor may measure absorbance of a long wavelength (perhaps red) and a short wavelength (blue or UV). The absorbance of the long wavelength light will be a measure of the absorbance due to suspended solids. The absorbance of the short wavelength light will be a measure of the absorbance due to suspended solids plus DOM. The absorbance due to DOM can thus be obtained by subtracting the absorbance of the long wavelength from the absorbance of the short wavelength.

For the Spring 2016 semester, the Fabrication subteam has four main objectives. The first is to redesign the OStarS. In addition, the team will be further refining the design of the flocculation probe. The team will also be redesigning the constant head tank to improve chlorine resistance of the tank and to accommodate the larger float valve. Testing of a low cost turbidimeter will also be conducted.

Team Members

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Email Team
Documents

	Challenges	Task Lists	Symposiums	Final Presentation
S p r i n g '16		? Unknown Attachment	? Unknown Attachment	 CHT PPT:  CHT PDF:  OSTaRS PPT:  OSTaRS Google:  OSTaRS PDF: Floc Hopper Probe PPT: Floc Hopper Probe PDF:
S p r i n g '15		? Unknown Attachment		SRSF Weir Model: ? Unknown At DOM Sensor: ? Unknown At LCLH Float Valve: ? Unknown At Floc Hopper Probe: ? Unknown At
F a l '14		? Unknown Attachment	? Unknown Attachment	? Unknown At
S u m m e r '12	? Unknown Attachment		? Unknown Attachment	? Unknown At
S u m m e r '11	? Unknown Attachment		? Unknown Attachment	? Unknown At

S p r i n g '11	? Unknown Attachment	? Unknown Attachment	? Unknown Attachment	? Unknown At