

Hello,

The inspiration for my design came from traditional Fijian architecture. The goal was to create a kind of second village for the community. A village that was designed to provide a source fresh water and electricity to the existing village. Given the constraints of living on an island, I wanted to design structures that are easy to build and are both flexible and strong.

Fiji 1 was developed as a system with a dual purpose. It is both a rainwater catchment and desalination housing. Saltwater can either be carried from the lagoon or pumped with the use of a solar pump. The saltwater is stored in a container where it is heated to produce steam. The steam/fresh water is then cooled and directed to the concrete trough. The concrete foundation is made with an inclining trough to channel the fresh water to the village storage tanks. At the center of the structure is a large tub that is filled with saltwater and basalt rocks. The rocks retain heat and also doubles as a sponge for the remaining salt residue. The system was designed to produce about 75 liters of fresh water per day.

Fiji 2 was designed for a specific purpose. It borrows from Fiji 1 architecture, but it was designed as a housing for battery storage. The structure is designed to keep the batteries and other components elevated and dry. While the structure primary purpose is to support the solar array, it can also be used as a platform for wind power generation. Each housing unit is estimated to produce about 3900 kilowatts.

About the construction, Fiji 1 is 4.877 meters round at the base and 7.3152 meters in elevation. Fiji 2 is a little taller at 10.9728 and 4.877 meter squared at the base. The frame is made from aluminum tubing and the siding is corrugated metal. The aluminum tubing also serves as a support platform for the corrugated sheet metal and the solar array. I chose readily available, light weight, building materials because I wanted the design to be as low maintenance as possible. I also wanted materials that would not require special equipment to repair. For example, metal shears, hacksaw, and screws are the primary building tools.

As I stated in the beginning, the inspiration for the design came from traditional Fijian architecture. And like those structures, I wanted my design to be as close to natural as possible. I selected materials that are durable and resistant to corrosion.