

# BAMBOO U

A How-to Guide for Setting up  
**Your Own Backyard Bamboo  
Treatment Factory**

This guide will provide you with all the information you need to know to set up a small bamboo treatment factory to make your bamboo last a lifetime! It is based on the techniques and the systems we use here in Bali, Indonesia to treat our bamboo for construction.

To help structure this guide, we will be describing how to set up a factory with an area of 500 sqm (~5300 sqft), to approximately treat 50-60 10m (~30ft) length poles of *Gigantochloa apus* or 15-20 10m (~30ft) length poles of *Dendrocalamus asper* per day. We use the hot immersion technique for treating bamboo because we have found this to be the most reliable and suitable method when treating large quantities of bamboo.



# WHY should you set up your own Bamboo Treatment Factory?

Treating your own bamboo for your construction projects has a lot of benefits, particularly if you are planning for a long-term project and need a lot of bamboo canes.

With your own treatment facility, you will be able to:

- Control the quality of your bamboo.
- Communicate directly with your bamboo suppliers about the origin of the bamboo.
- Regularly check and test your solution to match your standards.
- Produce the necessary amount of material, therefore limiting dead stock and waste.
- Cut down on production costs, by limiting intermediaries and transportation.
- Maintain high standards of processed bamboo materials.
- Continue to be a part of improving the movement of bamboo construction!



# Step 1: Planning

Before building your factory, we believe that there are a few key factors that you need to consider.

## 1. The Scale/Nature of the Project

Bamboo projects vary greatly in function, size, location, users, etc. These elements will define your factory's scope and scale, particularly regarding the quantity of bamboo that you will treat on a daily basis.

## 2. Budget

Before building your factory, make sure you set yourself a budget which coincides with the scale and size of the project(s) you are working on. To help guide you in budgeting the setup of your factory, think about the following costs:

- Materials (including the bamboo!)
- Equipment and Tools
- Labor
- Overhead Planning and Management
- Transport In & Out of the Factory
- Area and Land

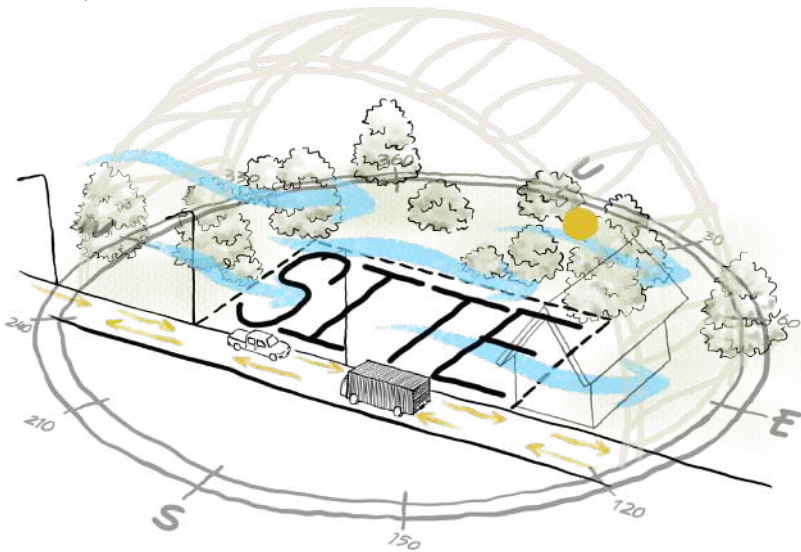
## 3. Accessibility

Proper road access to the site of the factory is crucial to the success of your factory. Good road access significantly reduces transportation costs and facilitates the delivery of materials.

## 4. Climate & Environment Consideration

To make your factory efficient, it is recommended to work with your site's climate and surroundings. For instance, bamboo dries best when exposed to warmth and away from sources of water on the ground but it needs to be well sheltered from the elements during the actual treatment process.

Weather-tracking apps like Windy can help you access climate related information like wind direction and sun paths which can be useful to plan your factory.



## 5. The Treatment Method

There are many different techniques and methods of preserving bamboo for construction with Boric Acid and Borax. Your choice of method will depend on the availability of:

- Equipment
- Materials
- Species of bamboo
- Space

In this guide, we will use as an example the hot immersion technique, which we find the most effective way to treat *Dendrocalamus asper* and *Gigantochloa apus* bamboo species.

## Step 2: Organizing

Once you have planned your factory, the next step is to organize the site as well as its sequencing of events to get the best results for your bamboo.

### The Flow of Activity



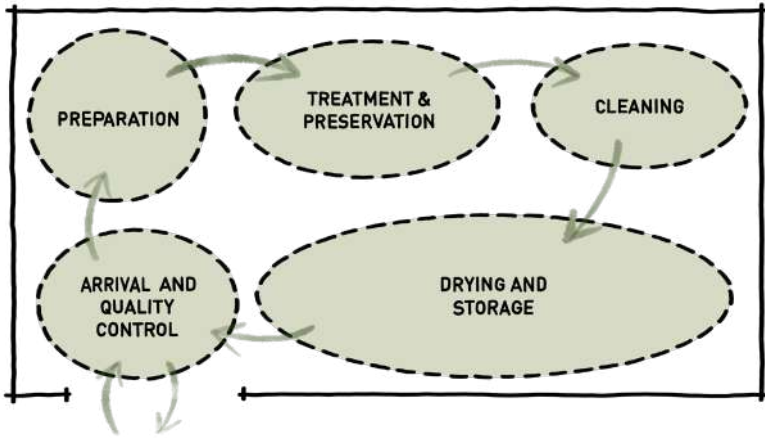
These are the 5 stages that your bamboo will go through before it is ready to be shipped to your construction site after treatment:

1. **Arrival to the Factory and Quality Control.** At this stage, you should be checking the quality and age of your bamboo as it arrives to the factory site.
2. **Preparation for Treatment.** This is the time to process and prepare your bamboo to have it ready for its soak in the solution.
3. **Treatment and Preservation.** Your bamboo is placed into the containers with the solution and left to be treated.
4. **Drainage and Cleaning.** After being removed from the containers, your bamboo is cleaned up with a high-pressure hose to remove all the remaining residual waste (lichens, dirt, marks, bamboo sap, and fungi)
5. **Drying and Storage.** Your bamboo is stored in a dry, safe location until it is ready to be shipped to your building site.

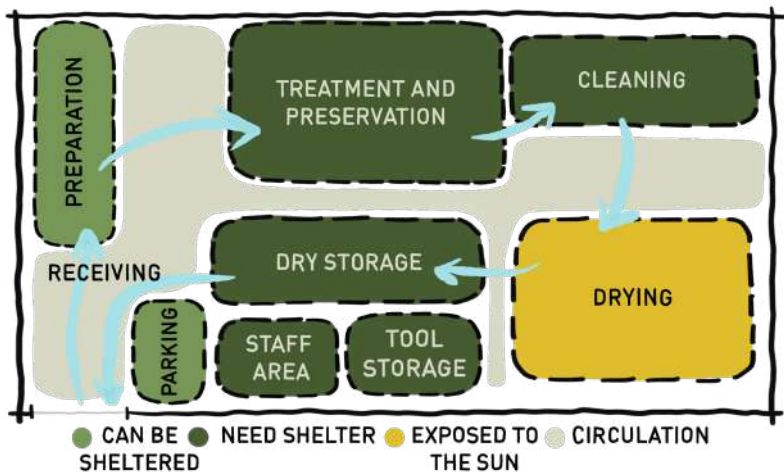


## Spatial Organisation

We have found that the best way to lay out your factory is by planning the areas using the different stages that your bamboo will be going through before it is sent to the site. You should be planning your factory so that your bamboo follows the Flow of Activity we outlined above. Make sure you are also considering the volume of activity, the control and management of the area, safety, and logistics.



The illustrations below show how we recommend distributing the bamboo treatment factory according to its layout, area, and treatment stages.



# Step 3: Defining Each Stage

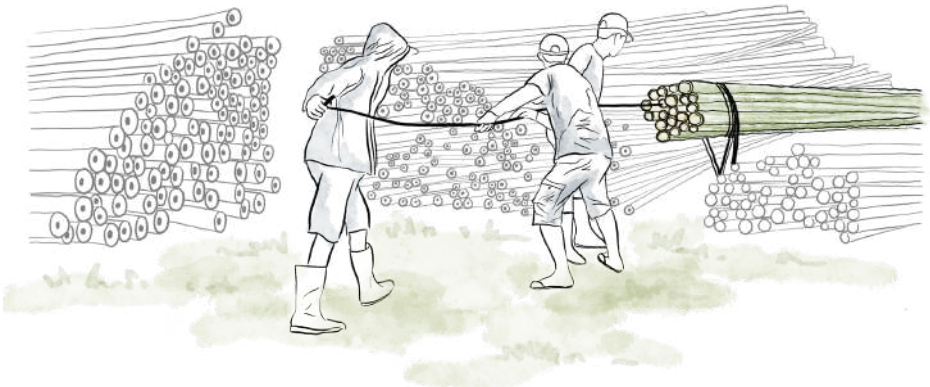
## 1. Arrival Area

This area is where the bamboo and materials will be loaded on and off the trucks, before and after treatment. This process is very important as it also guarantees that your bamboo is quality checked both when it arrives and leaves the factory.

In this guide, we are treating bamboo poles with a length of 8-10 m (~26-30ft) which is why we need an open space that can fit these poles.

## 2. Cutting & Piercing Area

For the Full Immersion treatment, the treatment solution needs to penetrate the inside of the bamboo chambers. This means that before treatment, you need to pierce through the nodes of the bamboo. This is also the right time to treat your bamboo into splits before treatment.



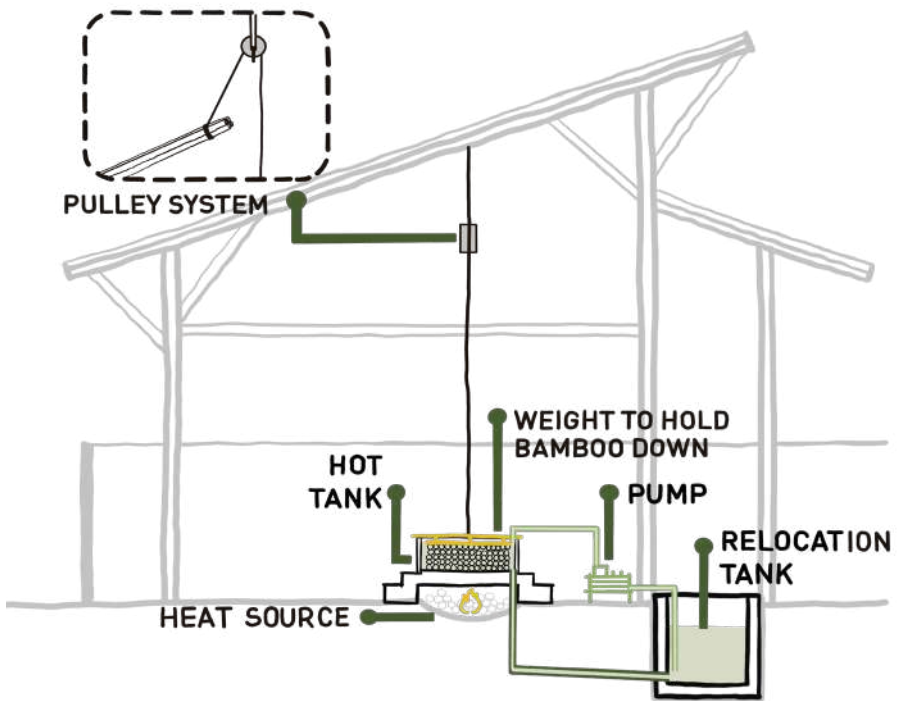
*You will need a bit of open space for this task and we recommend that you ask a couple of friends to help you!*

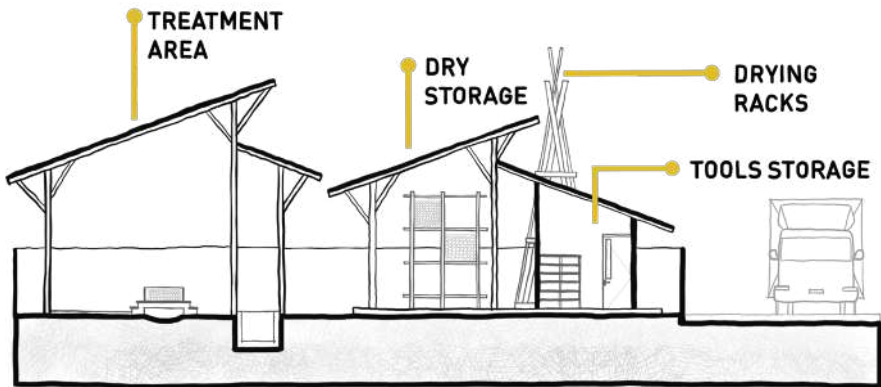


### 3. Treatment Area

In this area you will need two tanks, one to hold the treatment solution, we call this the relocation tank and another to treat the bamboo (the hot tank), and because we are recommending the hot immersion treatment method you will need a heat source under the treatment tank.

Place your bamboo poles in the treatment tank, weigh them down with a weight and make your borax and boric acid solution in the relocation tank. Once ready you will transfer the solution to your treatment tank (you can use a pump) and heat. After treatment flush the used borax and boric acid solution back into the relocation tank. You can use the solution again and again! Once the bamboo is treated use a pulley system to remove the bamboo from the tank.





## 4. Cleaning Area

The next step after the treatment process is to clean the poles with a high-pressure water hose. Make sure that your site is wide enough and that you are able to rotate your bamboo during cleaning to get all of its sides.

## 5. Drying Area

Once your bamboo has been cleaned, it can be left to dry before it is put into storage. To prevent mold, make sure that you are regularly rotating your bamboo throughout the drying process (every 12 hours is best practice). The drying process will take about two weeks. The most important thing with storing bamboo is that bamboo should not be exposed to the sun, the rain, and any ground moisture.

## 6. Dry Storage Area

The most important thing in storing bamboo is that bamboo should not be exposed to the sun, the rain, and any ground moisture.

## Tools & Equipment You Will Need Categorized By Area

### Arrival Area

- Truck

### Cutting & Piercing Area

- Handsaw
- Measurement tape
- Long rebar (sharp-pointy end on one side)
- Drill
- 6 or 8 mm (~0.026-0.030 ft) drill bit

### Treatment Area

- Solution
- Treatment tank
- Relocation tank
- Pulley system
- Weight to hold bamboo down
- Water pump

### Cleaning Area

- Clean water
- Jet washer

### Drying & Dry Storage Area

- Vertical or horizontal drying racks

# Step 4: Operations & Maintenance

## 1. Equipment Maintenance

To run your factory successfully, make sure you are regularly inspecting your materials, tools, and equipment on site.

## 2. Inventory Management

Organizing and keeping track of all of the items that move in and out of your factory requires a lot of careful and detailed work. Poor management of your inventory can impact production efficiency, product quality, and costs. We recommend having an indoor storage to store materials such as boric acid and borax.

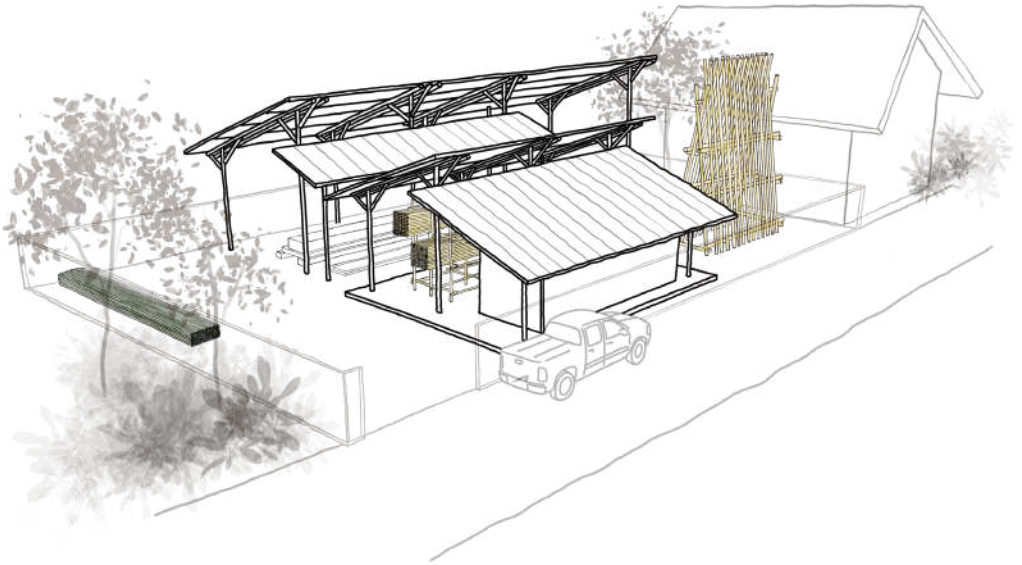
## 3. Form a Good Relationship with Your Supplier

Maintaining a good relationship with your bamboo supplier is very important to ensure that your bamboo continues to match your requirements and standards. It is good practice to regularly go to the field with your supplier(s) and make sure that your bamboo is being harvested and sourced properly.

## 4. Safety

Lastly, in running a factory make sure workers wear safety gear such as goggles and gloves whenever they are on the factory floor to reduce the possibility of injuries. It is also important to have a safe way of disposing of your wastewater and used treatment solution

# Final Mock Design For Your Backyard Bamboo Factory



Above is a mock design for a backyard bamboo factory. If you have a smaller amount of space, we recommend using the Vertical Soak and Diffusion (VSD) Treatment Method with a similar spatial arrangement. Though keep in mind that your poles will be treated vertically which will impact the design of your treatment area. You can learn more about this treatment method on the Bamboo U Blog: <https://bamboou.com/treating-bamboo-in-your-backyard/>

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For more information, please contact: [info@bamboou.com](mailto:info@bamboou.com)

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