SWC – CONSTRUCTION WITH BAMBOO (BAMBUSA VULGARIS)

Jessica Trujeque Bolio[1], Luis Manuel López Manrique[1] and Rufo Palacio Martínez[1]

[1] Universidad Juárez Autónoma de Tabasco, Cunduacán Tabasco

Introduction

This present work shows how construct with bamboo follow a simple rules, also here study two phisycal properties of bambusa vulgaris; one of the more than 2000 bamboo species, this one grow up in the south region in México and Central America.

1. Recommendations

To cut de bamboo it's necessary to be early morning like 4 or 5am with full moon, because we need the lower quantity of aloe, once done this its necessary put to rest de bamboo on vertical way to let the aloe drain and leave, almost 4-7 days on this position see figure 1.

Figure 1 once the bamboo has cutting, most rest on vertical position.

Hilling bamboo: could be on natural or chemical way. This is for preservation of fungus and humidity.

Natural: smoke passed open or closed system; See figure 2a an 2b.

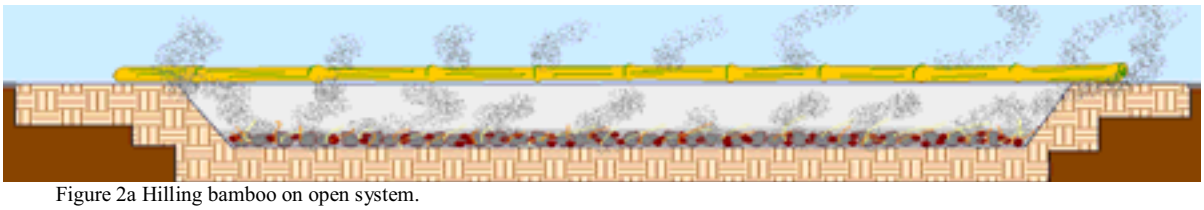

Figure 2a Hilling bamboo on open system.

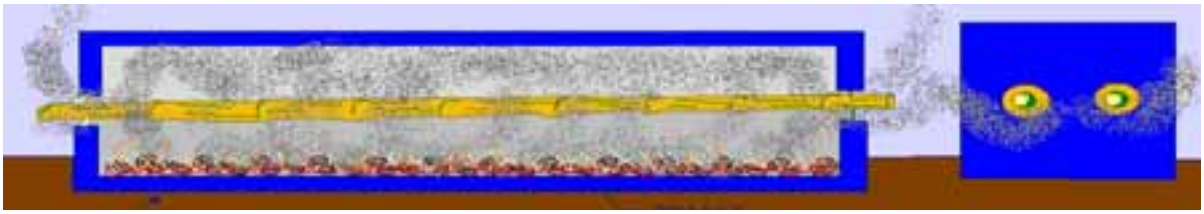

Figure 2b Hilling bamboo on closed system. Its more controlled than the open system. Chamber made of bricks.

Hilling Chemical: Using these components. submerged in water, or injecting the fluid

A. Arsenic pentoxide	D. boric acid	G. boric acid
Copper sulfate crystals	Copper sulfate crystals	borax
Sodium dichromate 1: 3: 4	Sodium dichromate 5: 3: 4	Sodium dichromate 5: 1.5
B. Boliden salts	E. Zinc chloride	H. boric acid
	Sodium dichromate 1: 1	Borax 5: 1.5
C. Copper sulphate		
Sodium dichromate	F. Zinc chloride	I. pentachlorophenol
Acetilic acid 5.6: 5.6: 0.25	Sodium dichromate 5: 1.5	Sodium dichromate
	J. composition septica Trial	by Fire

There is several options about how fill and reach the bamboo with these compounds. See figure 3a, 3b, 3c.

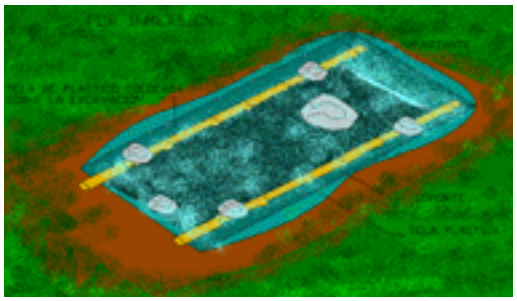

Figure 3a. submerged on a cavity on earth, to avoid flotation, put some rocks over the bamboo

Figure 3b Mix the composition on a portion of water and then heat until the bamboo its totally reach on the substance

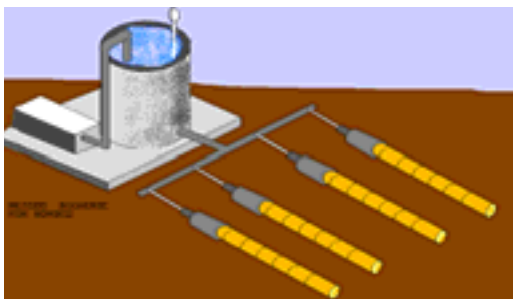

Figure 3c Automatized pumped system. The mixture of compounds

2. Construction techniques with bamboo

Basically all it's about cuts and unions between each piece of bamboo. It's pretty much artisan or handcraft work.

Shape of cuts: Fish mouth, flout head, bisel, two hearings. See figure 4

Figure 4 the basic bamboo cuts, also exist variation of each one to the accommodation for building construction.

Example of variations of bamboo, see figure 5a, 5b and 6.

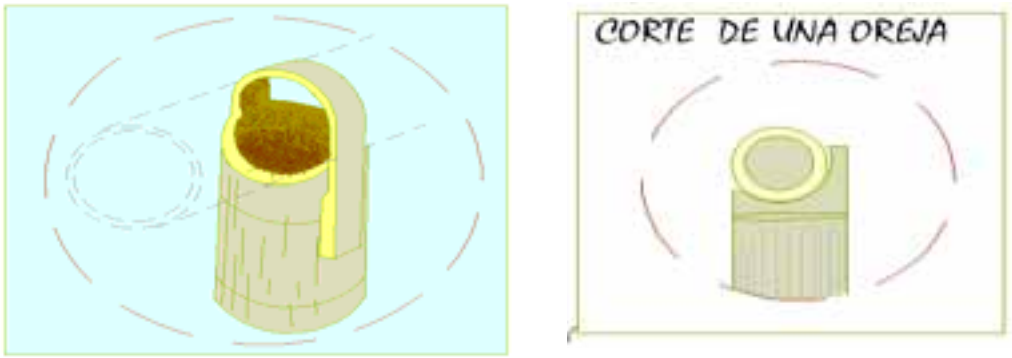

Figure 5a schematic draw of one hear prolonged and 5b with a short one hear.

Figure 6 Real overview of bamboo union.

Another type of union on a basement made of concrete, also its used a stick of steel as a joint.

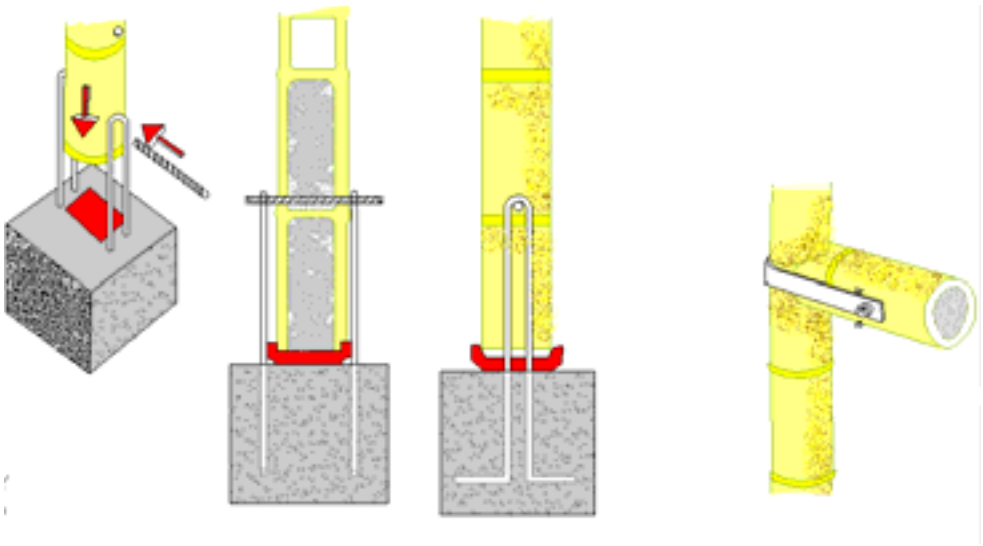

Figure 7 steps to get the vegetable-steel, the resistance of bamboo it's almost the same as a simple column of steel and concrete.

3. Bamboo resistance considerations

The bamboo *bambusa vulgaris*, resist to compression 8Tons per cm^2, its half of the Guadua angustifolia bamboo 18 Tons per cm^2, if we compare a concrete cylindrical this resist 35Tonspercm^2, its juts about to made a simple substitution about how many bamboos required to use as a column.

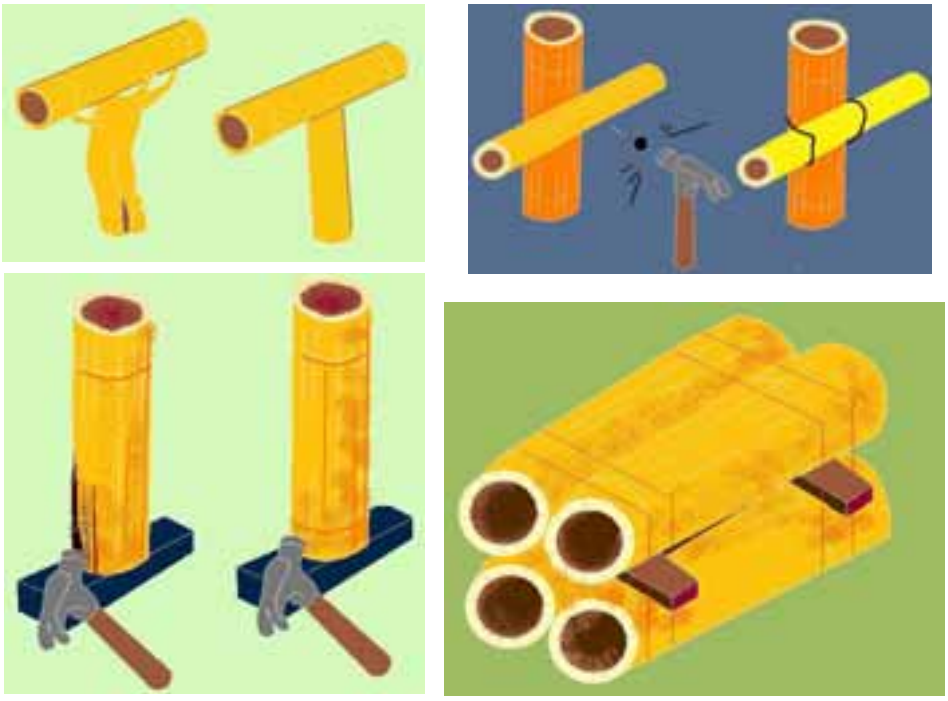

Figure 8 8a considered choose the mos straight bamboo, 8b never ensemble with nail, 8c be gentile when use the hammer, 8d put some wood support between unions.

4. Conclusion

One of the physical properties it's the thermal conductivity its .3Wm^2 K the wood got .6 , the resistance its considerable for being an vegetable material. in short, that creativity can be developed, has no horizons, since the beginning of an idea that can be captured on paper or lead to reality, it suggests that there are no limits to

highlight the constructive nature of bamboo, the aforementioned noble material, a message to homebuilders plant materials or for which this document will be encouraged and intended to create, build, invent something with bamboo, add greater diversity to the building, walls, ceilings, floors and doors.

Bamboo is the best alternative to be a sturdy, versatile, easy to handle, durable, and seismic.

A key aspect is the leveling of the structure, both vertically and horizontally. This is handled the same dimensions used in the size of concrete blocks to achieve the desired stability, "

All structures have been protected, perhaps its worst natural enemies: ultraviolet radiation and pests. These natural treatments were applied (beeswax and linseed oil) to hydrate each of the parts and special products that the market offers.

The strength to weight ratio makes this material is as important as the best wood, with an advantage in their favor, and that is to be a renewable resource, fast growing and a significant contribution in ecology.

References

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