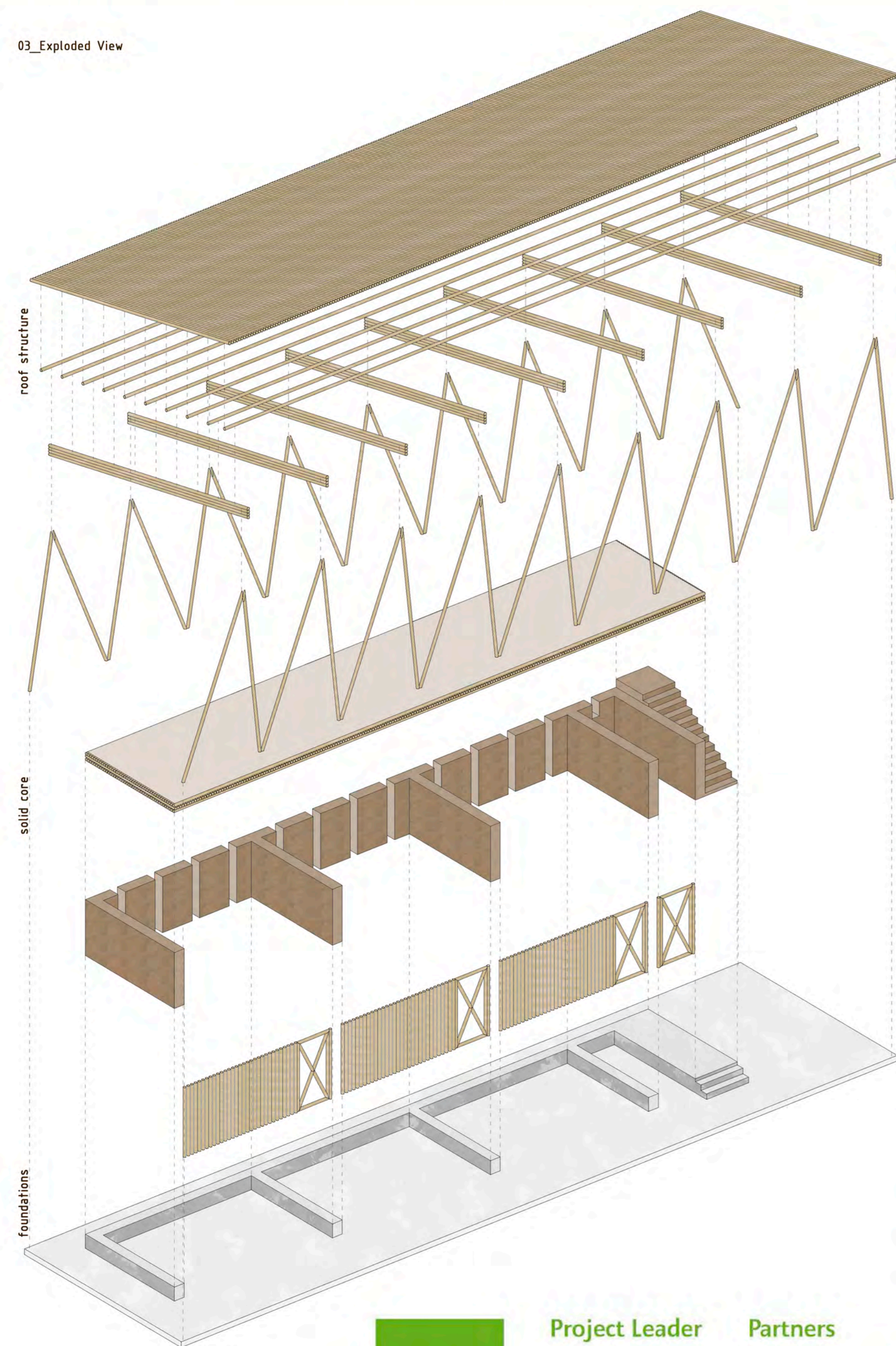


03_Exploded View



The **roof structure** is composed by three layers.

The **outer layer** consists of a sheet of bamboo poles that intertwine with jute rope and with the intermediate layer as well.

The **middle layer** is formed by a beam substructure which anchor the outer layer to the main beam structure of the inner layer.

The **inner layer** consists of beams made of four bamboo poles tied which support the whole roof structure and is the connection with the pillars that support it.

The **pillars** are made of bamboo equally, and they anchor the roof structure to the ground by a continuous spread footing.

The slab of the solid core is planned as a **trafficable roof**, made of a bamboo structure (similar to the roof structure) that rest upon the adobe walls.

The **solid core** is formed by adobe structural walls, which are responsible for defining the different classroom areas.

Continuous spread footing of reinforced concrete is planned as the **foundations** for the adobe walls and the bamboo pillars equally.

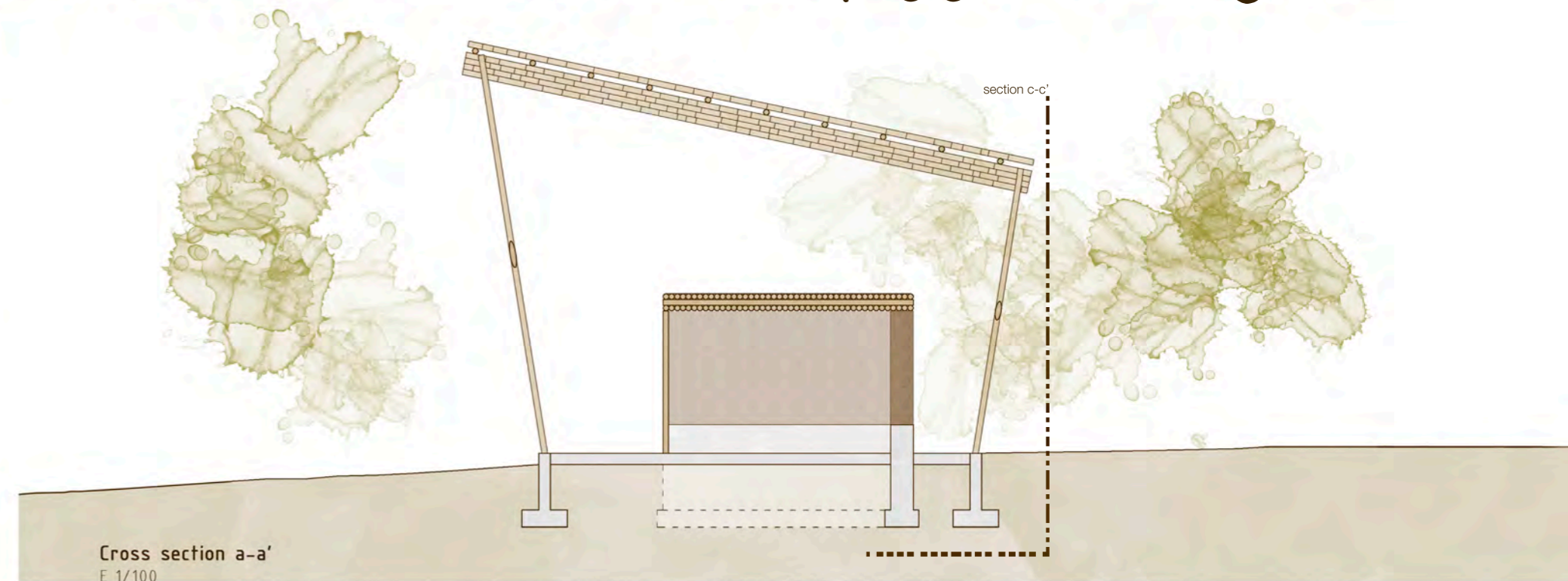
The foundations of the pillars consist on a continuous spread footing cause the lightness of the roof requires an anchorage that intends to prevent any effect from the climate or earthquakes on the structure.

Moreover, a concrete base is planned as a method of regulation and waterproofing regarding to the ground, and as the paving of the building as well.

The whole structure of the building is solved by **two independent structures**: the roof structure, made of bamboo, and the solid core, which consist on a structure made of adobe walls. As you can see, both are very different, the first one is light and flexible while the second one, on the contrary is heavier and rigid.

The **bamboo** is used because of its presence in the traditional architecture of Bangladesh, and advantages like the simplicity of its construction or the light, low-cost and low environment impact structures, being flexible as well, which improves its behaviour facing the climate and earthquakes. Specifically, the bamboo "bamusa balcooa" is used, which is a local specie that reaches out 30 metres long.

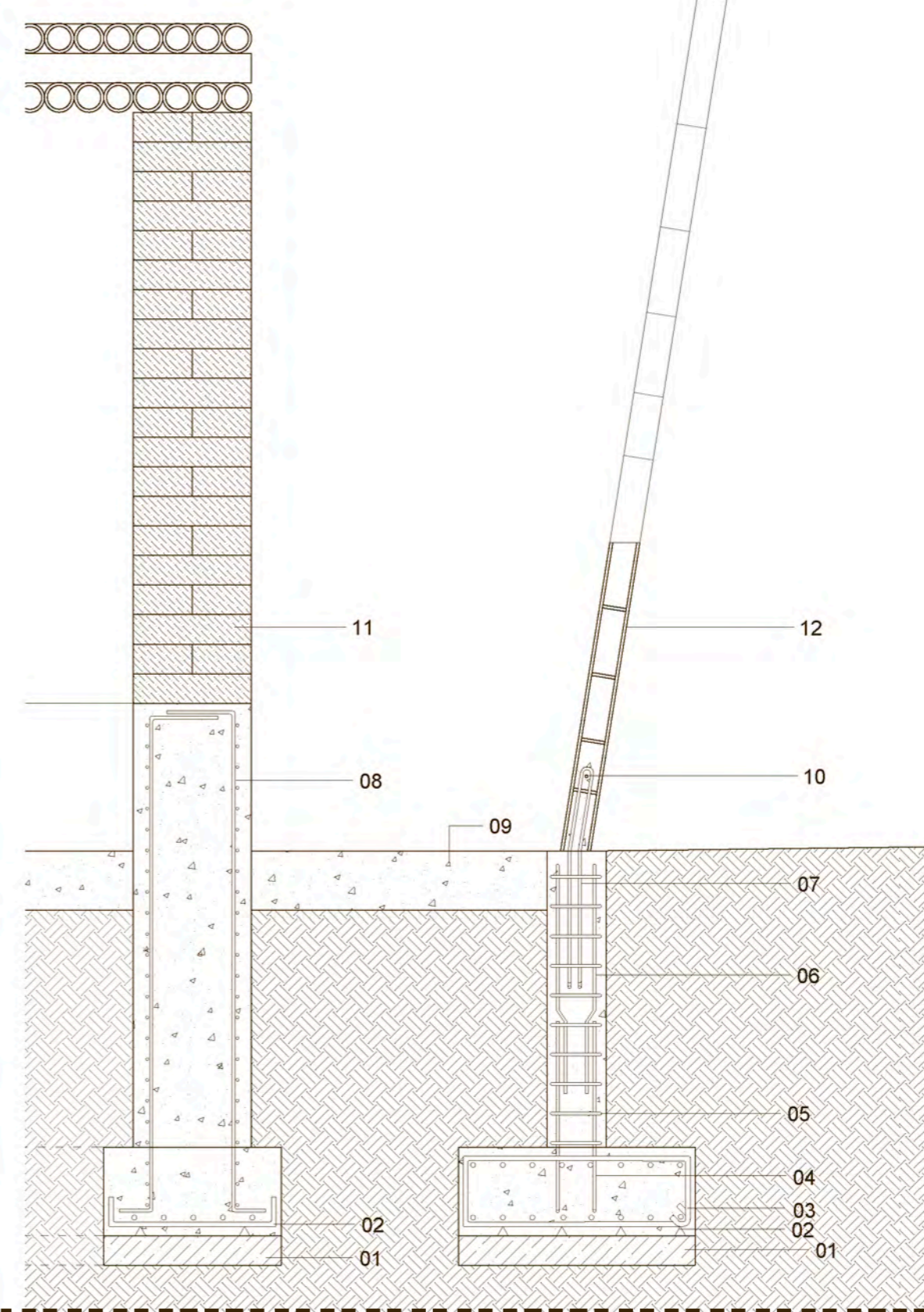
The use of the **adobe** is due to the simplicity of its construction, because it doesn't require specific equipment, as well as it is part of the local architecture. It provides good insulation too, which is an advantage in warm climates.



Section c-c' detail

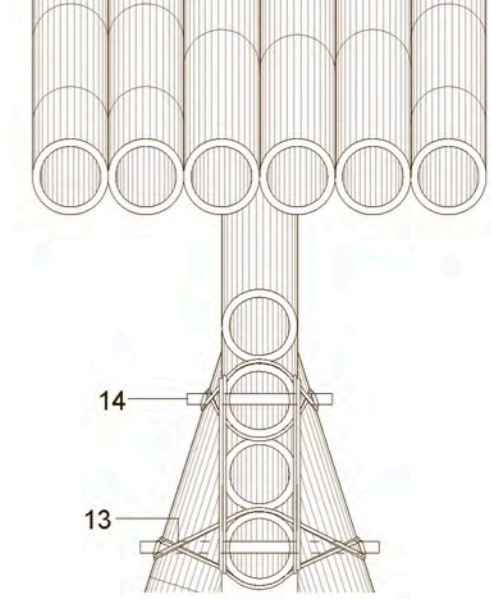
Legend

- 01_Blinding concrete, e = 10 cm
- 02_Reinforcing bars separator (7 cm)
- 03_Reinforcing bars for footings Ø16 mm
- 04_Reinforcing bars for the connection between footings and pillars Ø12 mm
- 05_Brace Ø12 mm
- 06_Reinforcing bars for pillar Ø12 mm
- 07_Fastening rod Ø12 mm
- 08_Reinforcing bars for baseboard Ø12 mm
- 09_Concrete base, e = 20 cm
- 10_Fastener for bamboo pillars Ø16 mm
- 11_Adobe walls, brick size 4.0 x 20 x 10 cm
- 12_Bamboo pillar
- 13_Jute rope
- 14_Fastener for the connection between beams and pillars
- 15_Mud layer
- 16_Bambo barks layer
- 17_Bamboo triple line slab
- 18_Inserted bamboo into the adobe wall



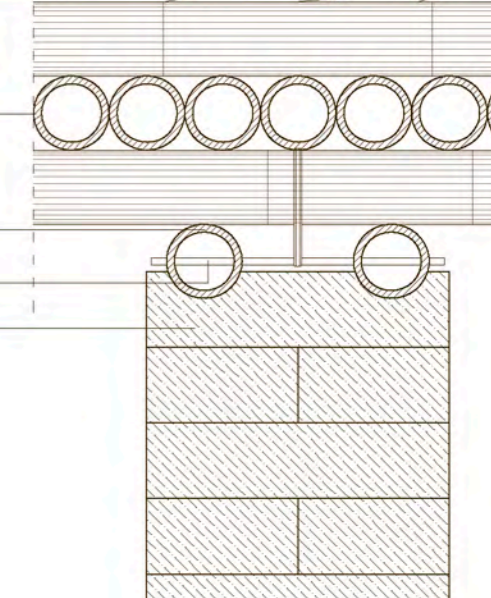
Junction between the pillar and the roof

E 1/10



Junction between the adobe wall and the slab

E 1/10



Junction between the footing and the pillar

E 1/20

