

FOG NET (TOP PART)

or nylone

(A1)

R1

Steel support struc-

ture (frames, beams) Fog nets from HDPE



Approximately 85% of construction materials are locally sourced and renewable, including timber (such as vesi or dakua), bamboo, thatch, clay, and stone. The remaining 15% consists of essential imported components such as metal fasteners, steel joints, solar panels, batteries, and filtration technologies.



channels

Foundations are built using large local stones or coral rocks, forming a stable base to resist erosion and manage stormwater. In some cases, earth-packed bases are reinforced with a mix of clay, gravel, and sand. Main structural frames and posts are embedded into these foundations or set on small concrete pads with steel joints for durability. Large structural elements like the glue laminated timber frames on Energy Towers and Community Center roofs are joined with horizontal tubes and diagonal tie-rods made of stainless steel, which provide structural stability and resistance against cyclonic winds. Smaller wooden elements and frames – such as walls, floors, and roofs of other infrastructure objects – are assembled using traditional magimagi lashings made from coconut fiber, minimizing the need for imported materials and tools to connect wooden parts togather.

Thatch, a key material in traditional Fijian construction, is used extensively for roofing, providing natural insulation and ventilation. Thatch roofs, made from sago palm or coconut leaves, are durable, lightweight. The flexibility of thatch also makes it suitable for creating curved rooflines.

MAIN JOINTS

Horizontal tubes and diagonal tie-rods made of stainless

(A1)

- structural stability and resistance against
- Glue laminated timber frames
- Holders for fog net

SOLAR TOWER CONSTRUCTION

Each solar tower is constructed from 14 precisely engineered glue-laminated timber frames. These primary structural elements are designed with five custom interlocking joints per frame, allowing for controlled lexibility that enhances the structure's resistance to lateral forces such as high winds and seismic activity–critical in a cyclone-prone region

The frames are interconnected both laterally and diagonally, with each one joined to two neighboring frames on either side and three across the tower's inner span. This creates a rigid, triangulated framework that distrib utes loads evenly and ensures longterm stability.

Secondary timber structures are in tegrated into the primary frame to support the external cladding and the mounting of solar panels on the north-facing facade.



1. CONSTRUCTION STEPS



Mounting brackets and

Adjustable wooden

clamps

TIMBER SECONDARY STRUCTURES Secondary structures like walls and floors are built from local timber,

bamboo, and woven panels. They are lightweight, breathable, and tied with coconut fiber lashings.

strength and simplicity.

TIMBER FRAME AND FOUNDATION

Timber frames are anchored into

stone or concrete foundations using local wood and metal connections for















