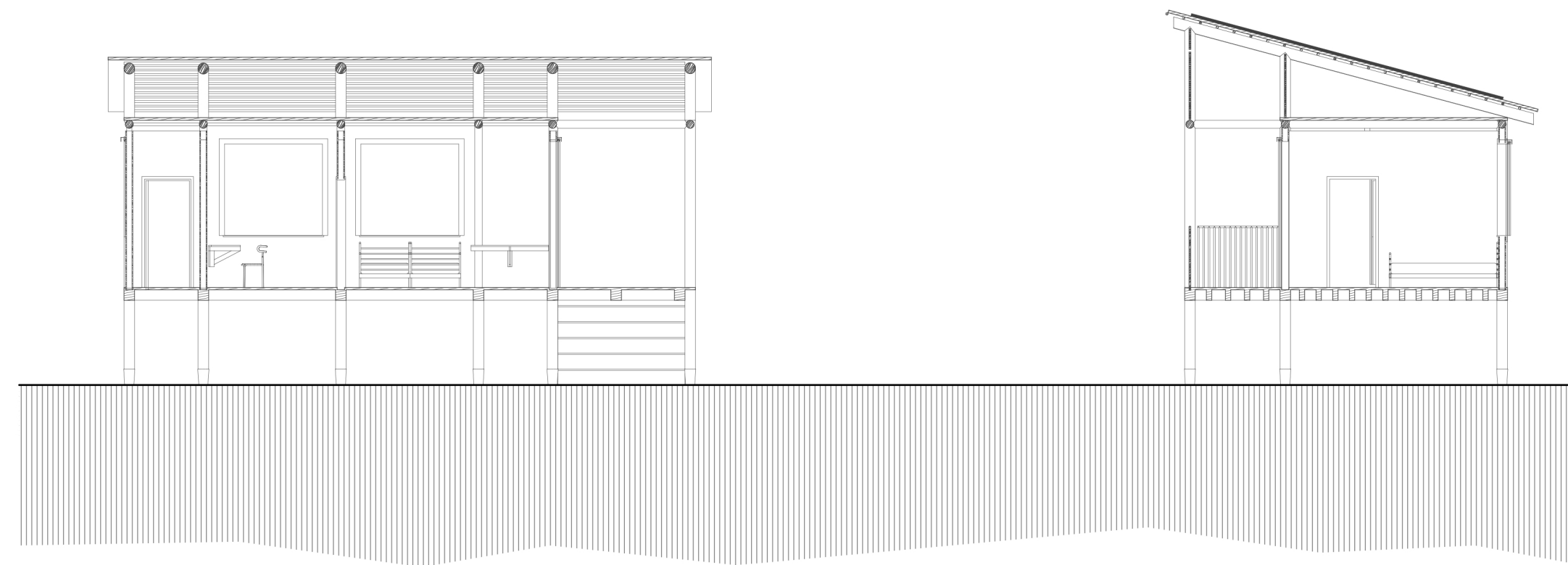


PROPOSED HUT DESIGN AND CONSTRUCTION CONCEPT

THE PLANNED HUTS ARE INTENDED TO SERVE AS BIVOUAC ACCOMMODATIONS AND COMMUNAL SPACES, POSITIONED WITHIN THE SITE TO REFLECT THE CHARACTER AND LAYOUT OF THE EXISTING VILLAGE. THE STRUCTURES WILL BE CONSTRUCTED USING GROUND SCREW FOUNDATIONS, A BAMBOO POST-AND-BEAM FRAME, WOVEN BAMBOO WALLS, AND UNGLAZED OPENINGS EQUIPPED WITH LOUVERED SHUTTERS FOR DOORS AND WINDOWS TO PROVIDE PASSIVE VENTILATION AND SHADING.

ROOF DESIGN CONCEPT

THE HUTS ARE DESIGNED WITH SINGLE-SLOPE ROOFS, WHICH NOT ONLY DEFINE THE ARCHITECTURAL CHARACTER AND SEAWARD ORIENTATION OF THE PLANNED ENERGY VILLAGE, BUT ALSO PROVIDE OPTIMAL NORTH-FACING SURFACES FOR THE INSTALLATION OF SOLAR PANELS. BY CAREFULLY DESIGNING THE ROOF ANGLE, SOLAR ENERGY CAPTURE IS MAXIMIZED, ALLOWING EACH PANEL TO OPERATE AT PEAK EFFICIENCY AND CONTRIBUTE EFFECTIVELY TO THE OVERALL ENERGY SYSTEM.



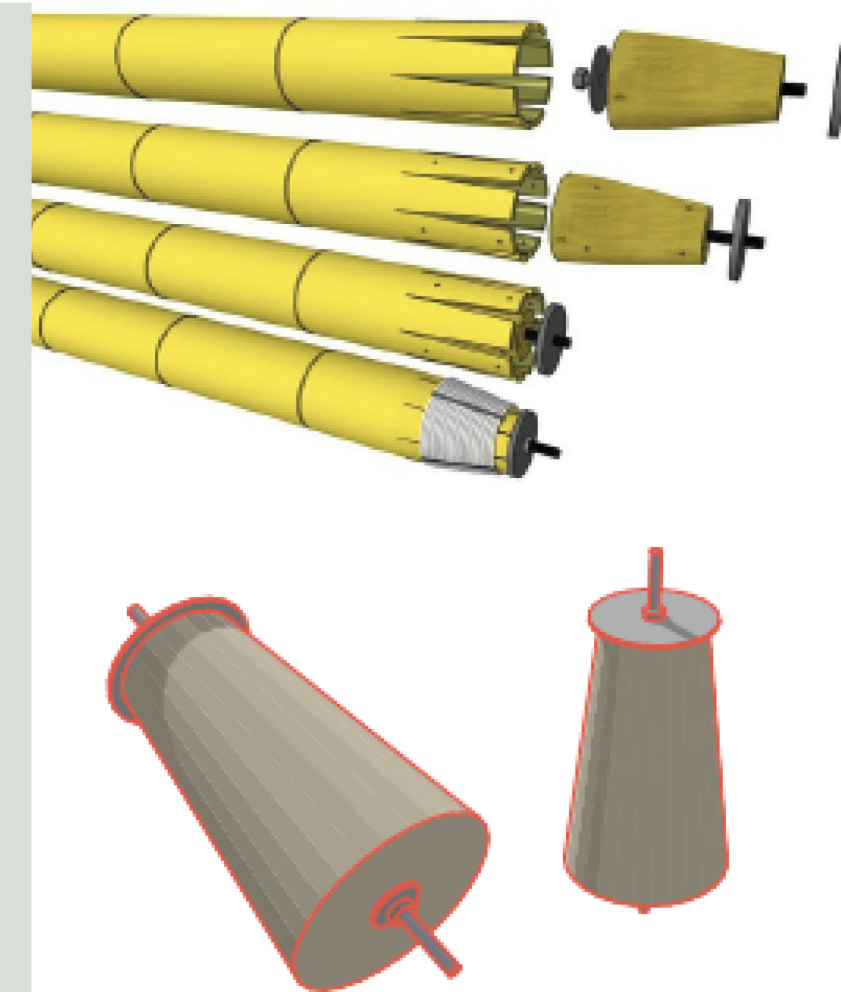
INTEGRATED RAINWATER AND SOLAR ENERGY UTILIZATION SYSTEM

RAINWATER FALLING ON THE ROOFTOPS EQUIPPED WITH SOLAR PANELS IS COLLECTED AND STORED IN RAINWATER TANKS LOCATED BENEATH THE HUTS. THESE TANKS ARE INTERCONNECTED, ALLOWING EXCESS WATER TO FLOW FROM AN UPPER-LEVEL TANK TO A LOWER ONE, MAKING USE OF THE NATURAL SLOPE OF THE TERRAIN. THIS CREATES AN INTEGRATED SYSTEM IN WHICH EACH HUT IS EQUIPPED WITH ITS OWN WATER TANK AND INDEPENDENT WATER SUPPLY.

IN ADDITION TO HARVESTING RAINWATER, THE SYSTEM IS ALSO CAPABLE OF STORING AND UTILIZING THE SURPLUS ELECTRICITY GENERATED BY THE SOLAR PANELS. THIS IS ACHIEVED BY USING EXCESS ENERGY TO POWER A PUMP THAT TRANSFERS WATER FROM THE LOWEST TANKS BACK TO THE HIGHEST TANK. DURING OVERCAST PERIODS, WHEN SOLAR GENERATION IS INSUFFICIENT, WATER CAN BE RELEASED FROM THE UPPER TANKS TO THE LOWER TANKS, PASSING THROUGH MICROTURBINES TO GENERATE ELECTRICITY FROM THE GRAVITATIONAL FLOW.

BAMBOO JOINTING TECHNIQUE

FOR THE CONSTRUCTION OF THE BAMBOO STRUCTURAL FRAME, PREFABRICATED HARDWOOD CONES WITH CENTRALLY EMBEDDED THREADED RODS ARE USED. THE ENDS OF THE BAMBOO POLES ARE SLIT AND BANDED ONTO THE CONES, AND A LOCKING NUT IS TIGHTENED ONTO THE THREADED ROD. THIS PROCESS RESULTS IN A REINFORCED ROD END THAT ENABLES RELIABLE AND LONG-LASTING STRUCTURAL CONNECTIONS, ALLOWING THE APPLICATION OF DURABLE, ENGINEERED JOINERY TECHNIQUES.



WATER AS A BATTERY – ELEVATING ENERGY STORAGE

WATER AS A BATTERY – ELEVATING ENERGY STORAGE¹¹

HIGH-ALTITUDE RESERVOIRS CAN STORE EXCESS ELECTRICITY BY USING IT TO PUMP WATER UPHILL. LATER, WHEN ENERGY IS NEEDED, THE WATER FLOWS BACK DOWN THROUGH TURBINES, GENERATING POWER—EFFECTIVELY FUNCTIONING AS A NATURAL BATTERY.

