

shape

## SunRainForestAbuDhabi concept

As the natural rainforest shows a wide variety of functions the unique *SunRainForest Abu Dhabi* implements natural skills to convert natural resources to sustainable outputs like electric energy and water.

The *Forest Leafer* opens up to the sky to collect sun and rain much like a budding plant, while other designs are focusing on using wind and other natural resources like dew to create a integrated transformation from the tropic rainforest to the *SunRainForest* of Abu Dhabi.

The *Leafers* are build with the brandnew lightweight construction technology *splineTEX*, which is based on fibre reinforced plastic and appropriate for the realization of architectural double curved structures; the flexibility of the material allows production processes without moulds so that each *Leafer* can be designed and produced individually without increasing costs (*mass customization instead of mass production*).

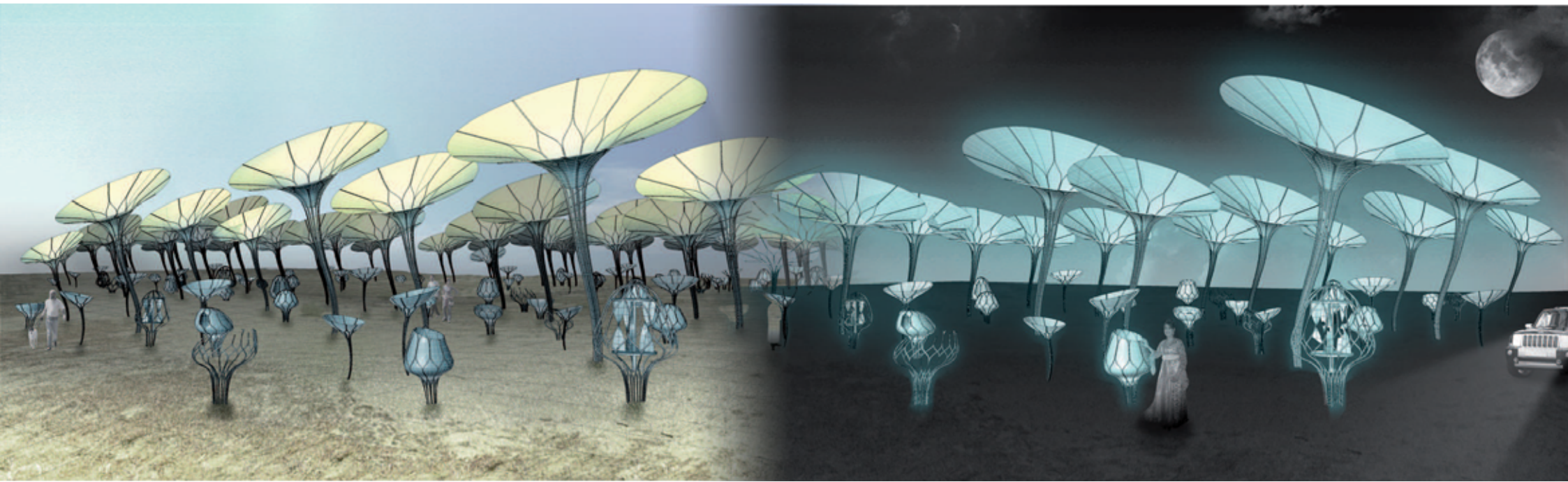
The revolutionary *splineTEX* was invented and developed by the applicants together with global partners to answer the strong demand for free shaped design technics.



dynamic



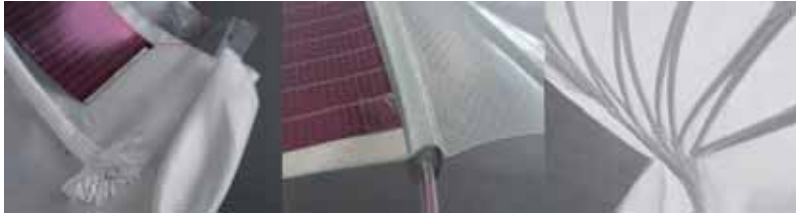
venation



# SunRainForest Abu Dhabi

## technical overview

The Forest Leafer



splineTEX\_skin components splineTEX\_laminated skin splineTEX\_prototype

The *Forest Leafer* is the core plant of the *SunRainForest* and combines effective energy collection with unique artistic design. The *Forest Leafer* finally grows to overall heights 3 to 10 meters and always moves the head in two axis towards the sun to catch most of its valuable rays. In the rare case of rain, the *Forest Leafer* adjusts upwards to collect plenty of rare sweet water to regulate the microclima inside the *SunRainForest*.

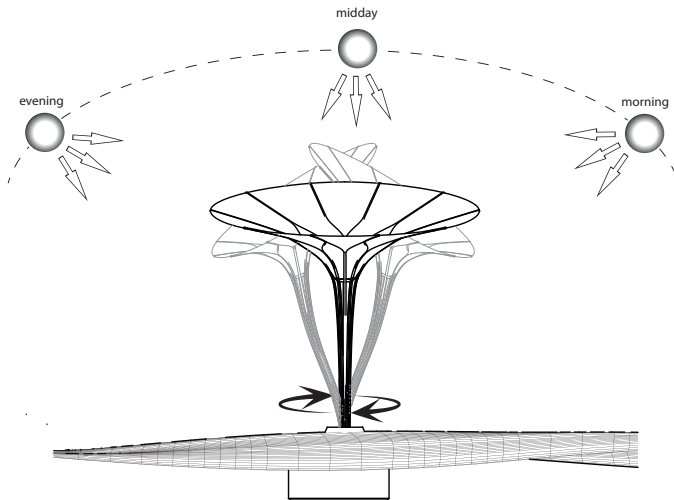
The multi layer skin embeds flexible solar modules with wires through the veins. The full diameter of the leaf varies from 2 – 6 meters.

The shaft connects the functional leaf with the solid basement in a flexible way (the shaft has similar characteristics like the pole for pole vault) to allow the horizontal and vertical movements to follow the sun. The shaft combines static and logistic requirements, such as forwarding of energy, water and light.

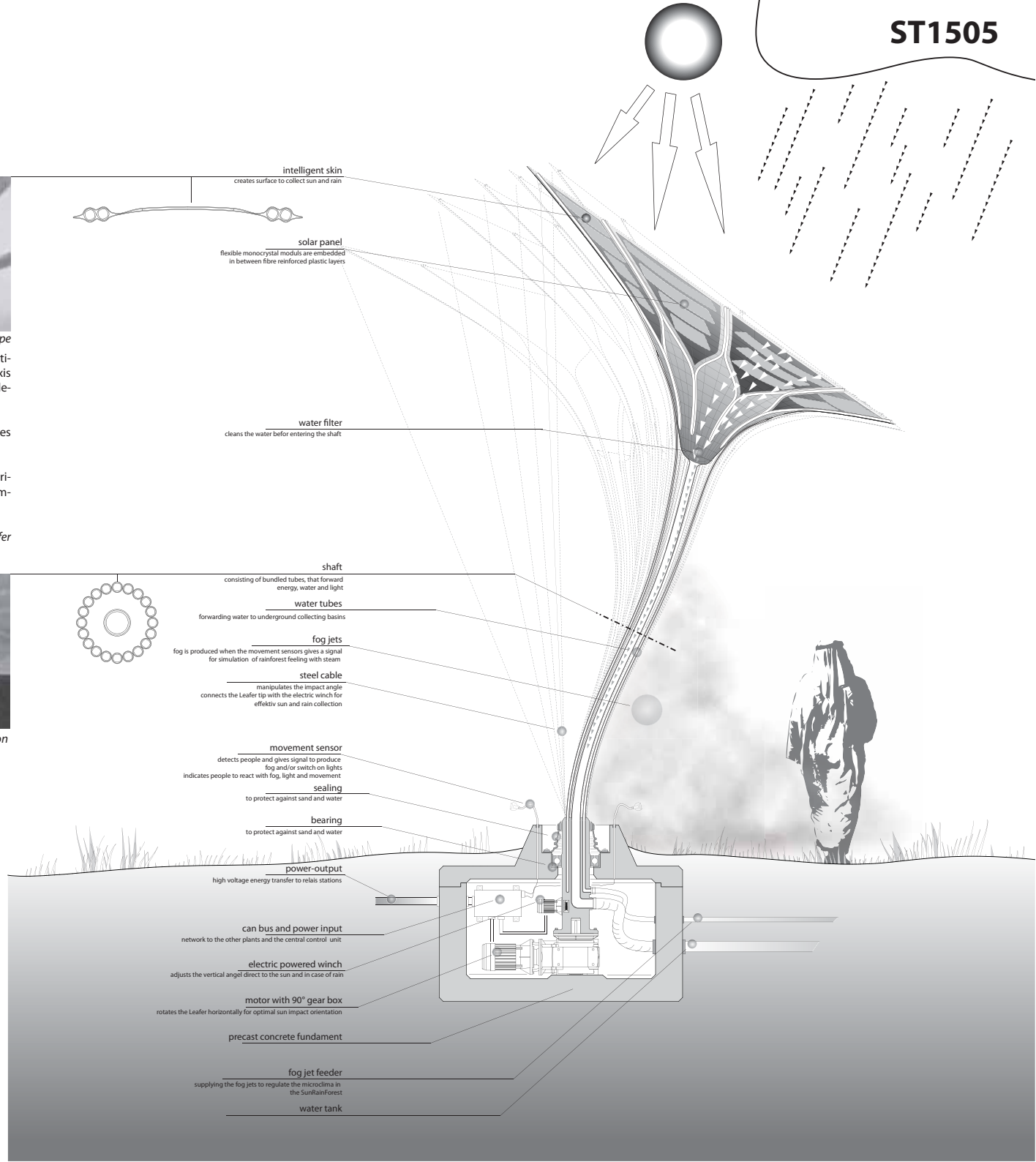
The root contains the intelligence to steer and control the *Forest Leafer* by connecting the individual *Forest Leafer* to the *SunRainForest* and its visitors by energy output and interactive systems.



splineTEX\_prototype splineTEX\_structural hose splineTEX\_skin section



ST1505



**ST1505**

**SunRainForestAbuDhabi**

1:1 prototypes



# SunRainForestAbuDhabi

application of *ForestLeafer* to site

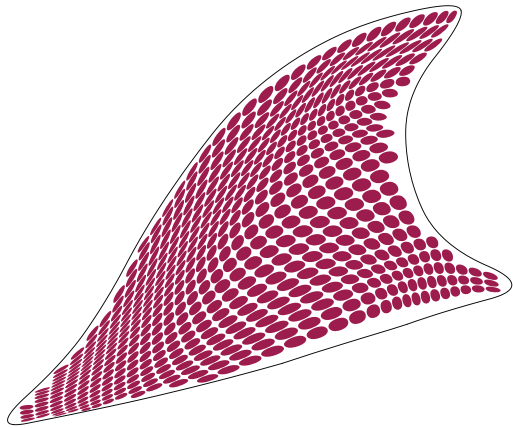
Intelligent natural parameters are defining the exact position of each different "plant" inside the *SunRainForest* to guarantee high effectiveness of diversified "plant" functions.

The *ForestLeafer*s "grow" to different heights and leaf diameters according to its position and distance to each other throughout the whole area.

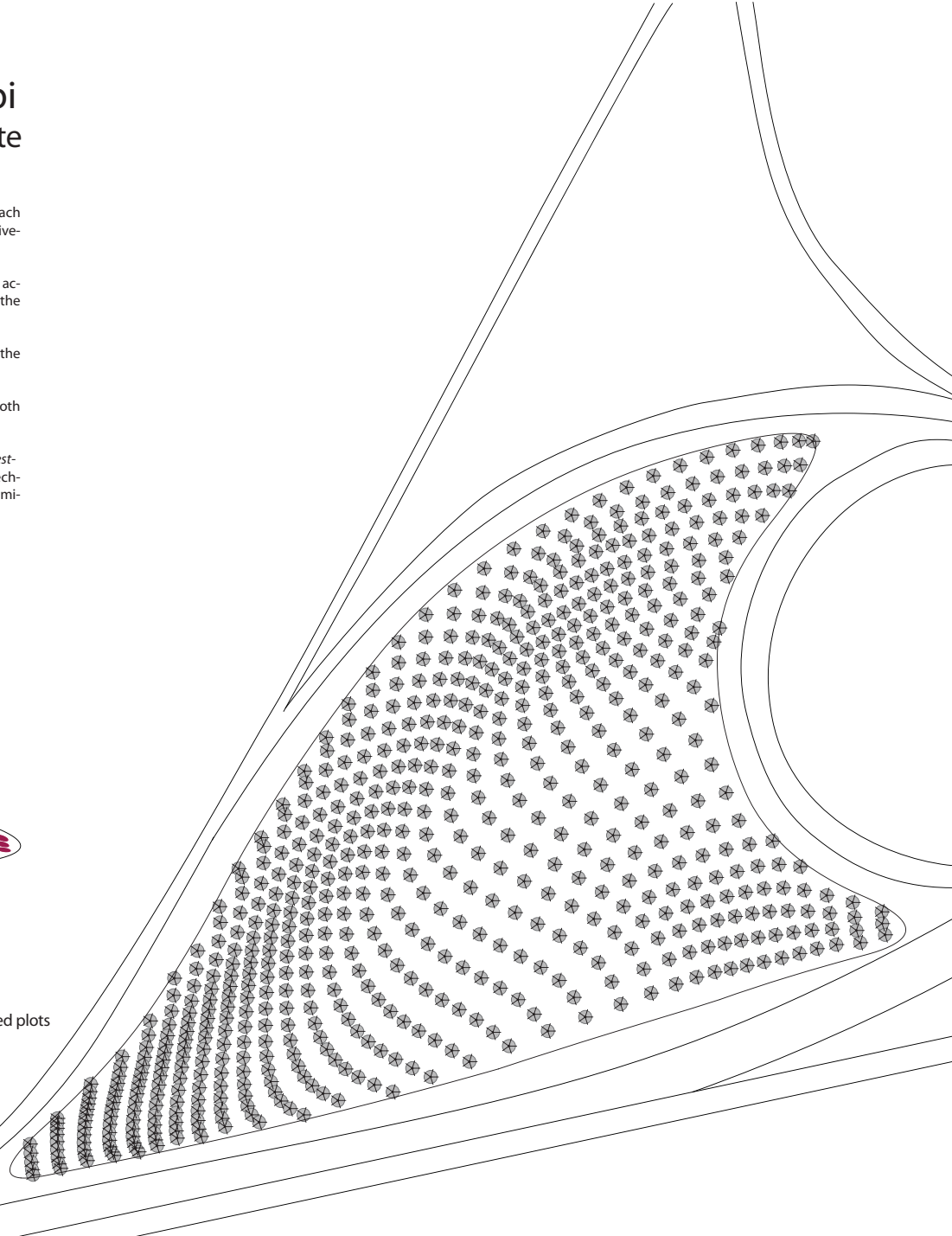
The wind collector plant is placed on the northwest streetside of the area to obtain the maximum wind energy.

Due to the proximity of the site to the airport, the design regards both - top view an the human eye view.

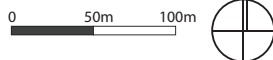
The *SunRainForest* Abu Dhabi produces **904.000 kwh** (700 *Forest-leafer*s) per year based on state of the art solar and wind energy technics and spread fog of **600.000 liters** of rainwater for a postive microclima influence by rising relative humidity.



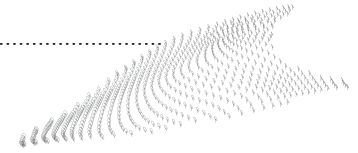
max. expansion of the *ForestLeafer* on their parametric defined plots



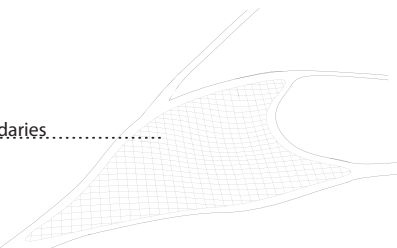
positioning of the *ForestLeafer* on the site



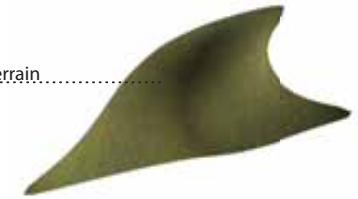
field.....



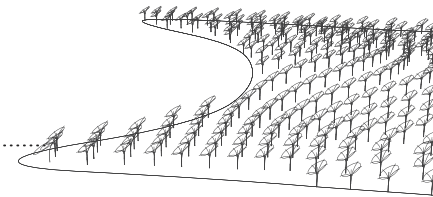
boundaries.....



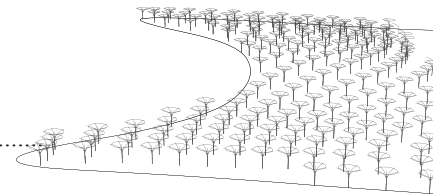
site terrain.....



8:00.....



12:00.....



17:00.....

