A sustainable building is being built when inactive architectural elements can create maximum energy and comfort conditions together with the high performance of systems, while the least amount of energy were needed. After examining case studies, regional climate studies and design principles, the process of project formation began.

The main concept of the project is based on the modeling of the structure and application of wind turbines and aqueducts that have been used extensively in the middle East. According to climatological needs graph, it is possible to increase the comfort level by means of inactive solutions, in this case we have:

7.5% (658 hrs) comfortable hours in comfort and 21.8% (1907 hrs) comfortable hours in Passive Solar Heating and 28.4% (2485 hrs) comfortable hours in Evaporative Cooling and 31.3% (2744 hrs) comfortable hours in Thermal mass + Night Vent and 34.2% (2997hrs) comfortable hours in Natural Ventilation

Finally we will end up about 10791 hours of comfort, all calculated by Ladybug and Climate consultant software analyze.

In the ceiling cover, recycled concrete material is used which has a significant thermal capacity and is one of the inactive methods in the Thermal Mass + Night Vent section. There are openings on the ceiling, which their size change due to wind catcher distance, and they are a place to put the solar panels on the ceiling. Some of these openings for the provision of light will be randomly covered by appropriate glasses that prevent the heat.

Due to lower fluctuation in the temperature of -4 meters and mostly lower, the set is located inside the ground. To use the wind, an innovative wind catcher structure is used to cool the environment that they are used in different levels, both in terms of height and depth of the ground, to cool the maximum of all the heights of the underlying shell.

At the bottom and center of the wind catchers, the water ponds that all of them are embedded in a -10 meter scale for evaporative cooling which trapped the air flow from the wind catcher into the water of the ponds. When the temperature is reduced, they are driven into the space by metal blades which have a nano cover, and move around the set. These metal blades are capable of opening and closing the openings inorder to control the temperature of the air during different seasons of the year. All ponds are connected to the aqueduct and there is water flow inside the communication channels. A part of the air entrained through the wind catchers enters in these communication channels and due to the direct contact with water, the

temperature of the air is greatly reduced, and air dusts are eliminated, which also reduces the temperature of the earth’s surface.

A metal structure is placed in the center of the inflow air of the wind catcher which does not allow air to flow from the inside of the wind catcher and prevent wasting it, so that the entire air flow in all directions enters to the center of the wind catcher structure completely. In the center of the wind catcher structure, there is a turbine that by narrowing air channel and draught air condition, the wind speed increases then the turbine will rotate and power could be supplies for using night light. At the end of the flow section, the air flow is rotated toward the dominant wind direction, which improves the flow rate of the air inlet.

In the entrance and interior sections of the set, vegetation is used to counter the effects of air dusts and sand particles in the area that might move with the wind blowing to the site, that significantly reduces the dusts. The Solar Envelope method has been used to calculate the ceiling with a maximum amount of shading on adjacent buildings and in the nest step, the ceiling shell sets lower than the solar shell volume that is provided by Ladybug software with regard to the site’s location.

In order to take advantage of solar energy, according to the site's analysis, the amount of energy absorbed by the ceiling covering two parts of the site is a total of 61333 kwh / m2, which is a smart mechanical panel placed on the roof, depending on the location of the ceiling, their location change due to the sunlight to the optimal position. From the desirable view, after discovering the suitable directions, the amount of openings in the site determined that creates draught air condition under the shell part.