**THE PEROVSKITE BRIDGE, AN OASIS FOR THE CITY OF MASDAR**

The idea of creating an Oasis Bridge made as an agrupacion of solar cells following the geometry of the Perovskite solar cells, to connect both sides of the context, growing as a green micro city inside the city, that protects the pedestrians of the heat and gives them an Oasis as a public space, an intelligent park that refresh the city creating more oxygen and a micro climate as the vegetation. Using the structure to receive the solar energy and using it as well to generate an intelligent park that creates more pure oxygen, through an artificial Photosynthesis.

MICRO to MACRO architecture which follows each other with the same structure but adapted to the human scale, being able to generate a program which generate the RE use of the new generated energy by it, creating a self standing platform, a micro city inside the self sufficient city of Masdar, understanding the importance of creating new architecture that is productive and bio active, an architecture which is not passibe but RECEPTIVE and PROactive, an architecture which has been able to understand the functionality.

The Perovskite Bridge becomes a natural machine of energy, an intelligent park for the city and a landmark of cultural exchange through a program focused in sustainable energy, culture and respect for the future of the culture.

The capacity that the modulation and repetition of a new three dimensional structure permits taking account the sustainable aptitudes the triangles have in aerodynamics for the air forces and perfect reception of the sun energy.

The easy modulation for construction and solar capture will increase potentially to develop a richer program in the context of Masdar, the sustainable city of the desert.

The solar panels will receive the maximum solar energy as the latitude and the angle of the panels situated all along the facades following the Perovskite 3D Geometry for the structure,with an inclination is most optimal to gain the maximum output from solar energy.

After the open access leaning over the front´s border access to the area, starts to appear curve modular groupings alternately between the main structure, creating a continuous circulation bounding the Perovskite Bridge perimeter, developing inside different types of spaces adapted to the kind of programs which forms secondary circulations that generate diagonal views and reflections due to the materiality and geometry distribution following the main structure.

It generates an active tour as in a large shopping center generating activity and taking advantage of its great impact on the place as a milestone reference of sustainability, being activated for his functionality as an INTELLIGENT PARK, AN OASIS WITHIN THE DESERTIC CITY OF MASDAR.

The set´s shape is a combination of three-dimensional structure modular grouped along the main axis sequentially that PEROVSKITE STRUCTURE HAS, serving as the reference to receive the maximum solar energy. As well as his functionally, the aerodynamic form adapted to the winds generates a whole entity project that is adaptable to the context of the sustainable city of Masdar.

**ENVIRONMENTAL IMPACT STATEMENT**

The project works as a solar receiver which consists of an aggregation of octogonal cells with a three dimensional structure that follows the same geometry angles that Perovskite material has, to the most optimal angles to receive the sun energy during the whole day and year, are a whole and inherent in the project which becomes a solar machine.

Interest in perovskites, a class of materials with a particular crystalline structure, for clean energy emerged in 2009, when they were shown to be able to convert sunlight into electricity. The first perovskite solar cells had a conversion efficiency of only about 4 percent, but that has quickly skyrocketed to near 23 percent, which rivals traditional silicon cells. And perovskites offer some intriguing advantages. They’re potentially cheaper to make than silicon cells, and they can be partially transparent, enabling new technologies like windows that generate electricity.

The whole project becomes a machine of solar energy production, having a triangulated facade adapted to the main 3D structure, octogonal as the Perovskite material.

An arrangement of small flat mirrors that concentrate their reflection of solar energy on a tank holding a heating medium. The mirrors, also known as “heliostats”, manufactured by Abengoa Solar, a world leader in thermo-electric solar power stations, are arranged parabolically on top of the upper bulb of the hourglass and reflect the solar heat onto a cone shaped set of smaller mirrors that concentrate these reflections and shoots them down the neck of the installation.

The concentrated beam of solar heat then reaches a receiver, or, heat collection element, which is coated with a special absorber surface that maximizes the transfer of heat from the sun to the heat transfer fluid contained inside the receiver. This heat transfer fluid (HTF), which consists of molten nitrate salt, is heated to temperatures over 600 °C. The HTC is later transferred to a heat exchanger where water is turned into steam that runs a turbine generator. A small percentage of the steam produced is released back to the neck of the hourglass, thus making the solar beam visible to the public.

The higher heat capacity of the molten salt, allows for the system to store the heat energy which allows the installation to continue to produce energy during cloudy weather or even at night. The thermal storage included in the bottom bulb allows for the system to continue producing energy for hours after the sun is gone.

All the energy production and transformation components are hidden inside the bottom bulb thus becoming inaccessible for the general public, making it a safe installation, and taking advantage of the concepts morphology to allocate this elements.

The structure is built majorly out of recycled steel, aluminum extrusion, and titanium, guaranteeing excellent performance over long periods of time and thus creating no run-offs.