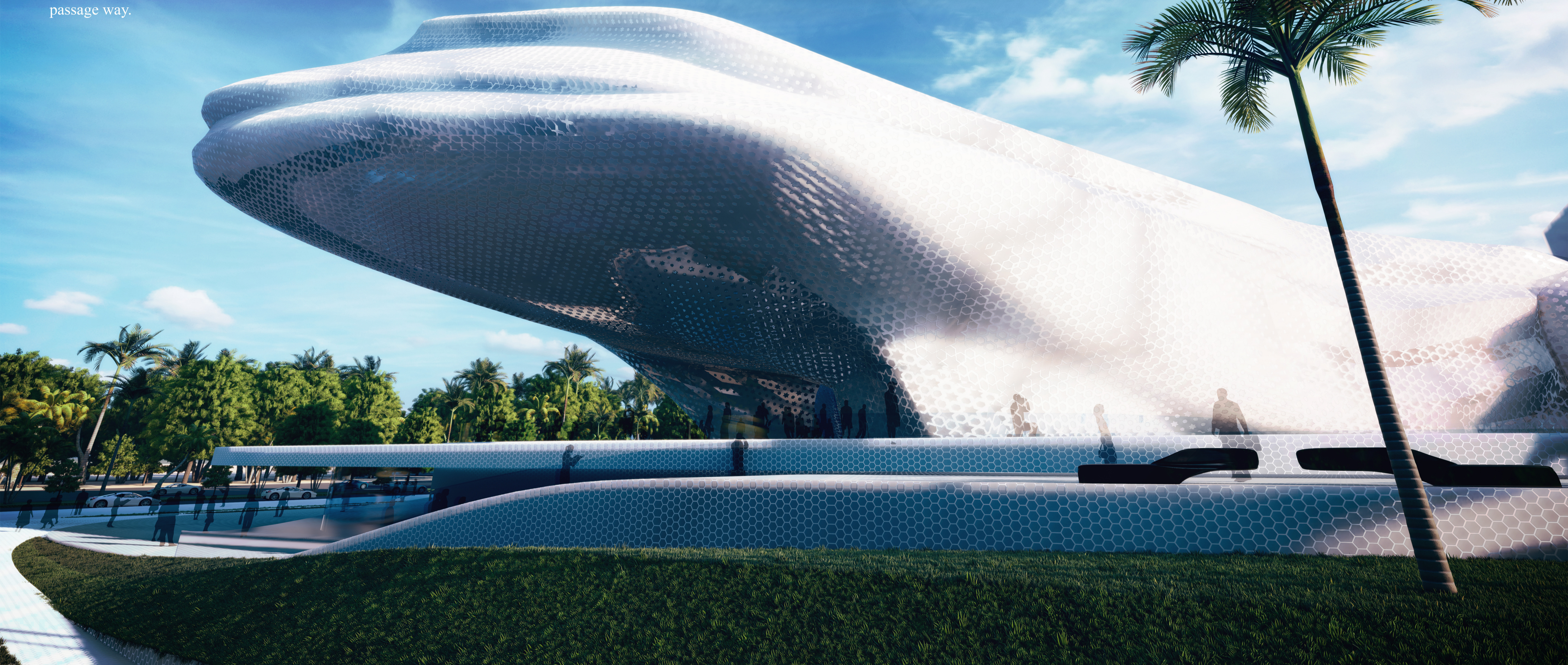


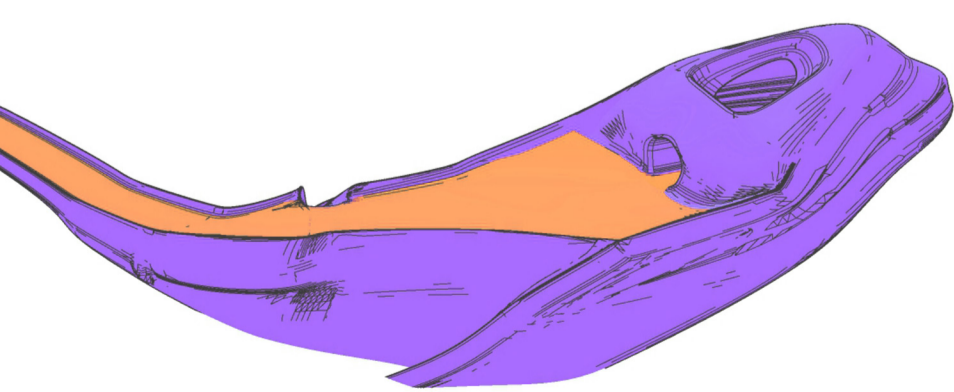
Museum of the Seven

The Idea for this project is creating the first sustainable energy museum in the middle east, where the location of Masdar city the first sustainable city is very suitable. We believe the best way to advance sustainable energy in UAE is to educate the public of the best sustainable energy practical applications around the world where all 7 sustainable energy sources will be explored and demonstrated to the visitors. Creating a unique sculptural landmark with integrated public spaces would encourage visitors from all over the world to visit. We believe this project uses practical cutting-edge sustainable energy technologies already existing in the market to make it a possible project to construct that will benefit not only UAE but its residents as well through education and eventually usage of practical sustainable energies in their own homes. The technologies used in this building is a mixture of a fast advancing technology of printed solar sheets on the facade of the building from a cutting-edge solar ink technology were a Islamic parametric pattern will be printed, and an already existing technology of tesla solar roof tiles to be added on the mass pedestrian passage way.

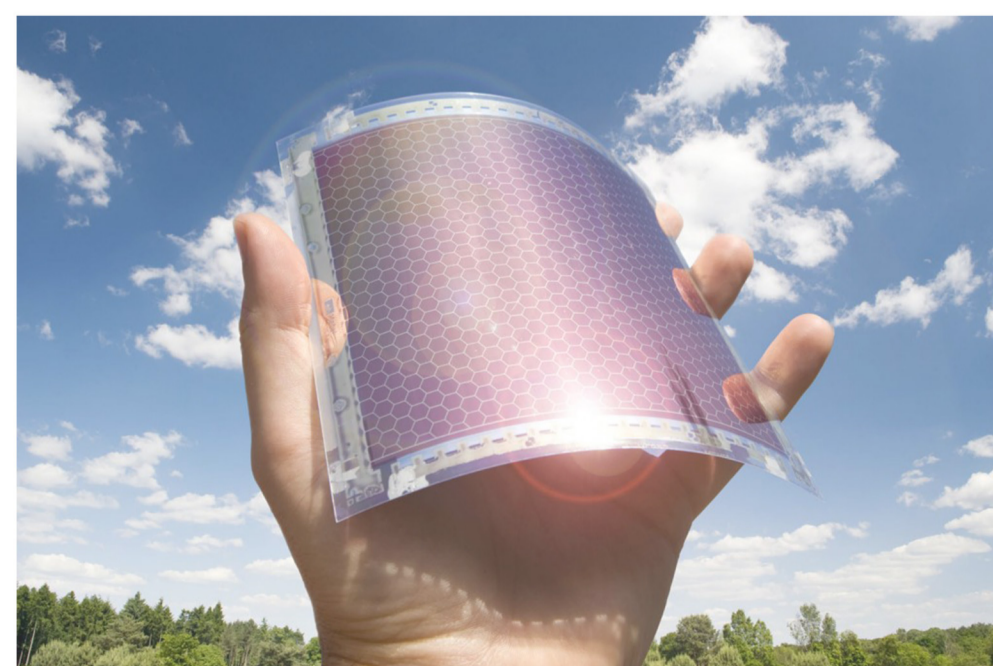


Sustainable Technologies Used

- Printed Solar Panels
- Tesla Roof Solar Tiles



Printed Solar Panels



Revolutionary solar cell technology created by University of Newcastle physicist Paul Dastoor, the organic printed solar cells are printed on an ultra-lightweight, laminate material, similar in texture and flexibility to a potato chip packet. The material delivers unprecedented affordability at a production cost of less than \$10 per square meter. The material is made by printing an advanced electronic ink onto paper thin, clear laminated sheets using conventional printing presses. This technology will be used in this project to create a parametric Islamic pattern on the mass of the building.

Tesla Solar Roof Tiles



Tesla solar roof tiles are used on the main passage on top of the building mass, where the unique application of this project is using the technology on pedestrian walkways as Tesla claims they are indestructible. This will open a new way to view solar technology application. A solar panel includes a backsheet layer, a plurality of photovoltaic cells adjacent the bottom encapsulant layer, a top encapsulant layer adjacent the plurality of photovoltaic cells having a plurality of louvers constructed therein to block side view of the plurality of photovoltaic cells, and a top layer adjacent the top encapsulant layer

Tesla Powerpack

Tesla Powerpack will be used to store the energy created, where they will be located in the mep area on the ground floor level. Powerpack is a fully integrated, AC-connected energy storage system with everything needed to connect to a building or utility network. It dramatically simplifies installation, integration and future support, offering system-wide benefits that far outweigh those of standalone batteries.

Structural Concept

The building construction basically consists of two systems: a concrete structure combined with a space frame system. In order to achieve large-scale column-free spaces that allow the visitor to experience the fluidity of the interior, vertical structural elements are absorbed by the external envelope. Glass Fibre Reinforced Concrete (GFRC) is the cladding material used over the frame system with thick insulation layer between, as they allow for the powerful plasticity of the building's design while being perfect to receive the final component of the shell which is the solar panel sheets.

Estimated Power Generated

Printable solar Panels :
 $10,000 \text{ sqm} * 80 \text{ w/sqm} * 360 = 288 \text{ megawatt}$
 Tesla solar tiles :
 $4000 \text{ sqm} * 290 \text{ w/sqm} * 360 = 423 \text{ megawatt}$
 Total Annual Power Generated : 711 megawatt

