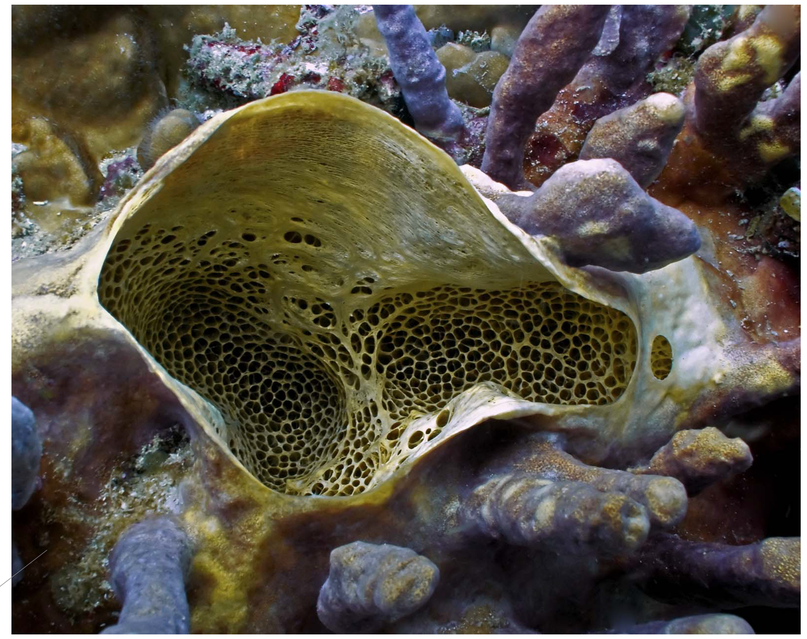
/ SPONGE

Sponges are animals of the phylum, meaning "pore bearer"

They are multi cellular aquatic organisms which have bodies full of pores and channels allowing water to circulate through them. Sponges most rely on maintaining a constant water flow through their bodies to obtain food, oxygen and remove wastes; therefore their structure is adapted for maximal efficiency of water flow. Out of the water, the efficiency of the structure is reversed, keeping water trapped within the pores and channels of the sponge and providing an outstanding Absorption Capability.



Aplysina fistularis Tube sponge

/ PRINTED SOLAR TECHNOLOGY

The technology of Printed Photovoltaic cells is based on an organic photoreactive polymer that is applied onto flexible substrates

Beyond the capacity for generating energy from sunlight, its application on plastic sheets provides interesting mechanical properties: thin, flexible, lightweight and translucent. Due to these properties, PV Plastic can potentially develop into a unique architectural element with a distinctive aesthetic and an energetic added value.

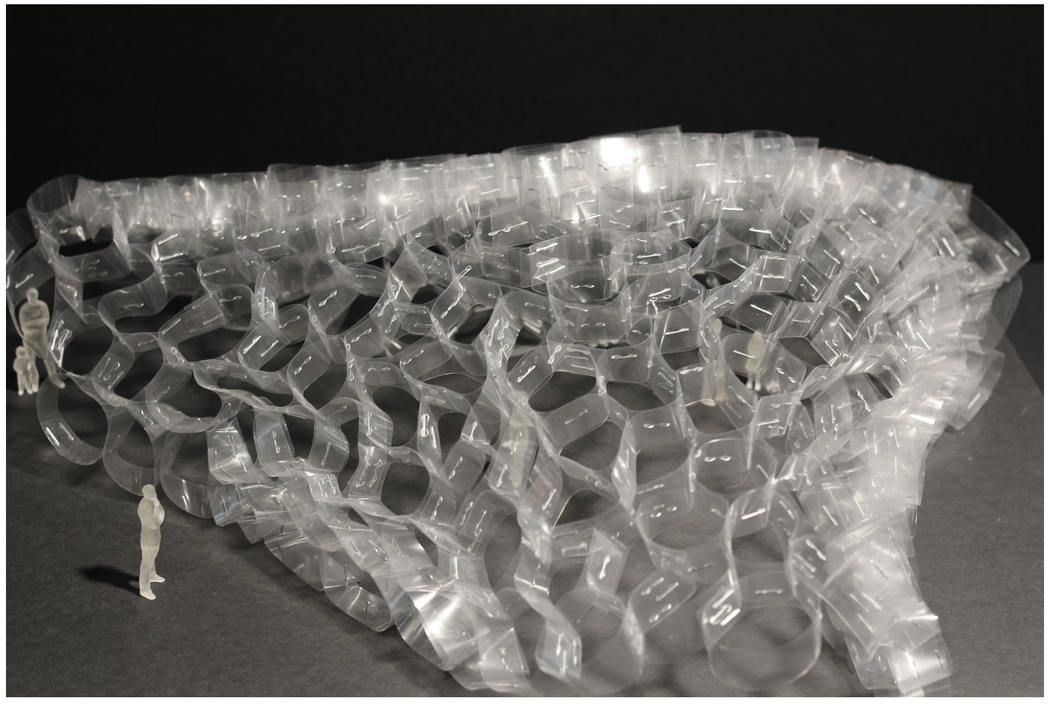
A study of the material led to the development of a structural organization that derives directly from its unique properties. A three dimensional cellular structure would provides ideal conditions for sunlight absorption due to high surface area, particularly in view of the panel's transparency and dual sidedness. The resulting solar structural skin can become a legitimate building material capable of performing at various scales - from domestic to urban to national both on and off grid.

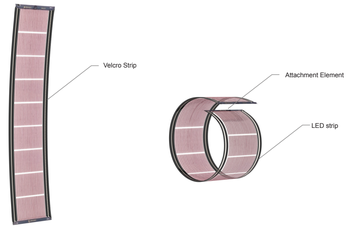
Traditional infrastructure used for generation and distribution of energy is as environmentally harmful as it is monstrously ugly. Therefore, solar energy needs not only to be performed, but more importantly it must be witnessed and experienced in the most positive and attractive fashion. With innovative design PV plastic can provide large scale clean energy aesthetically and gracefully.

/ STRUCTURE

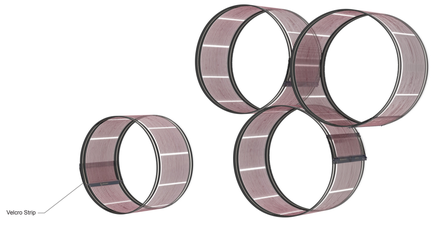
The structural skin can take any desired form whilst maintain its structural integrity independent of external means of support

When applied in an architectural scale, the skin can perform in variety of fashions. The skin can concave so as to span over large distances and act as a continuous curving multicellular roof. It can become an elaborate shading element or a canopy or a pavilion - a free standing architectural piece comprised exclusively of plastic sheets. Most importantly the Power Sponge would not only provide shade and unique aesthetics, it would have a matchless quality - the ability to transform sunlight into electric energy.

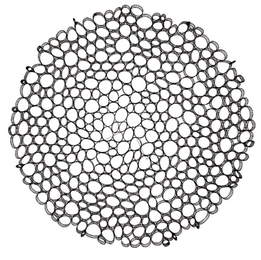




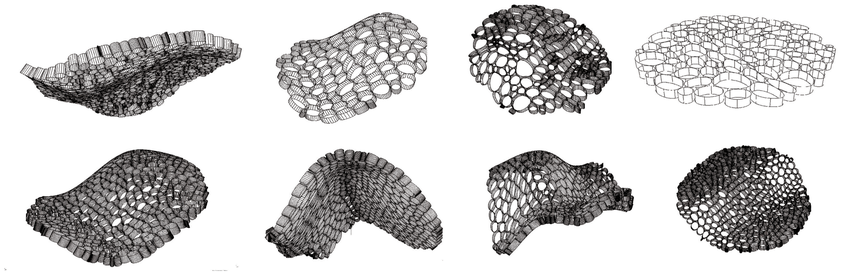
/ PV PLASTIC RING



/ ASSEMBLY METHOD



/ PACKING CIRCLES



/ PARAMETRIC SURFACE