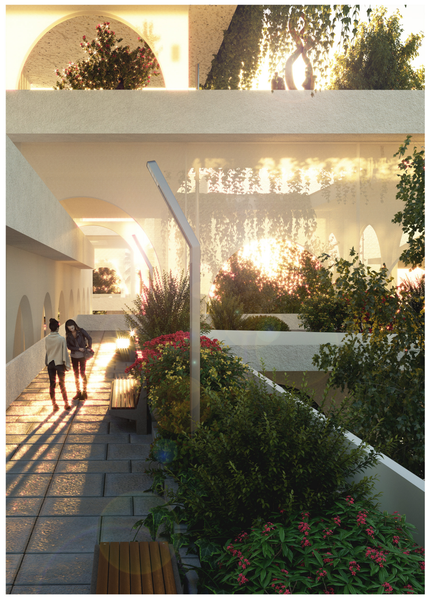
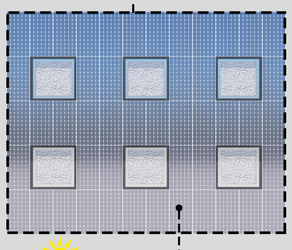
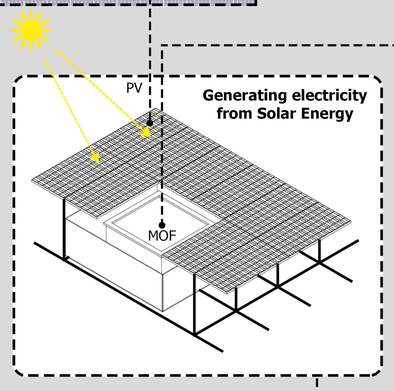


Generating electricity

Photovoltaic Solar Panel

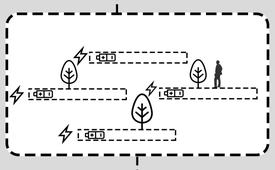
Monocrystalline Silicone Photovoltaic LG400N2W-V5





Generated Electricity from Photovoltaic Solar Panels

Contributing to the aesthetics of the design, the electricity storage units are carefully placed under the plates holding the solar panels. The electricity generated from the solar energy is saved to be used for the Suspended Gardens electricity needs(making it sustainable), the surrounding buildings and lighting the streets.



Project | Building | Street

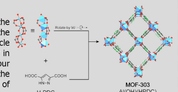
400w x 2001(4002/2) = 800,400w
800,400w x 6(hr) = 4,802,400w (4,802.4kw)
4,802.4kw x365 = 1,752,876 kw (1,752.876 mw)

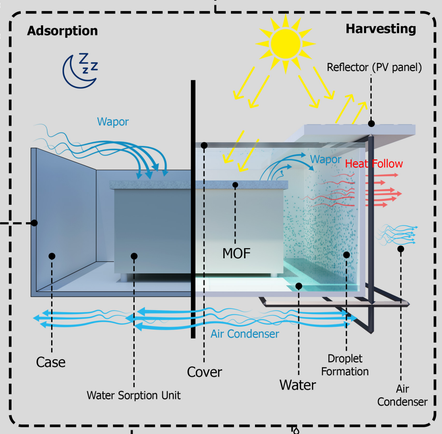
1,752,876 kw/h (1,752.876 mw/h) Annual

Water Harvesting

Metal Organic Framework (MOF-303)

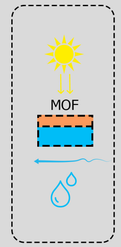
The capture cycle starts with saturation of unsaturated MOF upon exposure to the air at nighttime. This is followed by the release of captured water from the saturated MOF upon exposure to sunlight during daytime. The collecting cycle takes place during daytime when the released water vapor humidifies the air in the vicinity of the MOF. The hot humid air is subsequently cooled down, in our case by ambient cooling, to its dew point, resulting in liquefied water at the condenser. The collecting cycle (release-condensation) continues until the end of the daytime when the liquid water is collected and the next WHC starts.

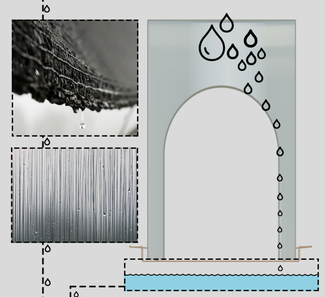




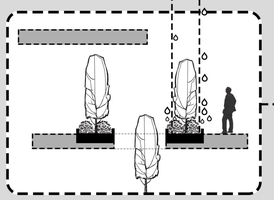
MOF

Devices that uses an Aluminum based Metal Organic Framework (MOF-303)
Water harvesting cycle that produces water from air. The water is saved in units and are used for watering the vegetation and need of the visitors of the Hanging Gardens





Fog Catcher mesh



Functional Nano Composite Materials to Harvest Fresh Water from Humid Atmosphere

MOF based water harvesters (1334 square meter)

1.2 kg of MOF-303 = up to 204 ml of water
3.6kg of MOF-303 (for each square meter) = 204x 3= 612ml
1334 x 612ml = 816,408ml (816.5L)

816.5x365=298,000 L Annual

Fog Catcher mesh (500 square meter)
12 L/Square Meter of Mesh
12x500 =6000L

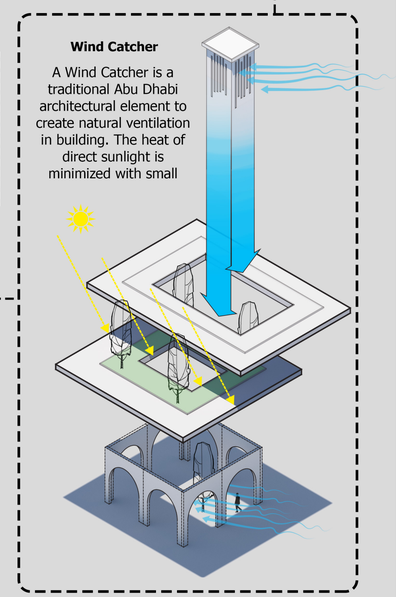
6000L Daily

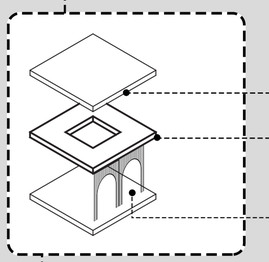
Energy generating contributions from Vernacular architecture elements

Designed with the mission of providing as much elements as possible in recognizing the importance of cultural values and principals. A society's identity is based on its traditional heritage, Suspended Gardens design is based on the actual arrangement of spaces and buildings of Abu Dhabi.

Wind Catcher

A Wind Catcher is a traditional Abu Dhabi architectural element to create natural ventilation in building. The heat of direct sunlight is minimized with small





Vernacular architecture

Implementing the principals of vernacular architecture, Hanging Gardens is bound to be a product of people, place, and culture. It is a symbolism of architecture that is related to the realization of identity personally and socially. Consisting of unpretentious, simple, indigenous, traditional structures following well-tried forms and types. A built environment created based on the society's need and in accordance with the natural environment (geography, topography, site, climate, local building materials, labor experience). It is fulfilling people's physical, economic, social, and cultural norms. A sign of identity, it is the "mirror" of the nation that reflects place and culture while being in harmony with the ambient environment.
What it has to offer goes beyond the statistics and output energy numbers. It includes values, relationships, freedom to think, act, and participate; all amounting to sustainable living morally and spiritually.