Façade source of energy for sustainable architecture in middle east

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Abstract As we know these days government's main problem is temperature and carbon publication increase Governments make conclusive decision to control temperature increases by using of clean and sustainable energies and decrease fossil energies use. We should make research about past similar projects at first and then match outcome information with our project's requirements. At last we should choose the best materials and energies to our design. The main goals are saving energy, decreasing carbon publication, decreasing pollution, revenue through out decreasing fossil energies and exporting extra energy. According to documents and evidences concluded we can use photovoltaic cells and wind turbines in facade crust and we can use green walls in order to insulation, wind shield, saving facade in front of UV ray, getting pollution, dangerous gases absorption, ghosting, decreasing vertical airflow, decreasing temperature in urban centers, increasing natural cooling…and wind catcher can be used to get airflow and make it cool and light by using of water mattresses embed in chimney, direct to enclosure.

Introduction: We had many important case studies in case of sustainable architecture in past Iranian architecture such as sheykh bahaei therm, kashan fin garden, Yazd wind catchers etc.
It seems we have necessity to come back to our past architecture and get experience, and assimilate them with modern materials, technology and architecture to achieve to sustainable architecture. for this purpose we need to know about usage of materials according to climate, local masonry techniques, bio gas, solar energy and photovoltaic cells, wind energy, wind catchers, green walls, green roofs, zero energy buildings, etc.

Deferent types of clean energies:

•Wind energy

•Solar energy

•Bio gas

•Geo thermal

•Wave energy

Clean energies advantages

•Lack of environmental pollutions production
•Free and unlimited source of energy
•Long effective life
•Easy access
•Sustainability
•Reproducibility

Wind turbines operation:
•The wind turns the blades.
•The blades turns a shaft inside the nacelle (the box at the top of the turbine).
•The shaft goes into a gearbox which increases the rotation speed.
•The generator converts the rotational energy into electrical energy.
•The transformer converts the electricity from around 700 Volts (V) to the right voltage for distribution, typically 33,000V.
•The National Grid transmits the power around the country.

Solar energy:

Solar energy is the most important type of energy,most energies based on solar energy,for example wind energy,photovoltaic etc.

Solar cells get the sun rays and convert them to electricity.

Green wall:

A green wall is a wall partially or completely covered with greenery that includes a growing medium, such as soil. Most green walls also feature an integrated water delivery system. Green walls are also known as living walls or vertical gardens. Green walls can reduce greenhouse gases such as carbon dioxide and decreasing environment temperature.

Green roof:

green roof or living roof is a roof of a building that is partially or completlely coverd with vegetation and growing medium, planted over a waterproofing membrane. It may also include additional layers such as a root barrier and drainage and irrigation systems.

Back ground research:

•**Dongtan eco** city **in china**

•**Masdar city in abu dhabi UAE**

•**Swiss tech convention center in Lausanne Switzerland**

Conclusion:

Facade as the most prominent member of building must be more practical, then we can use smart materials in facade to make energy depend on climate.

Diferent methods of clean and sustainable energy production can be used.

Architectural solution such as green roof and green walls to save energy can be used

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