Smart Façade Air Solar Collector System – SFA SCSys

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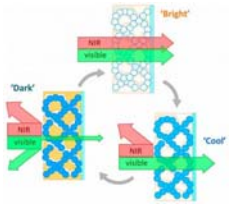
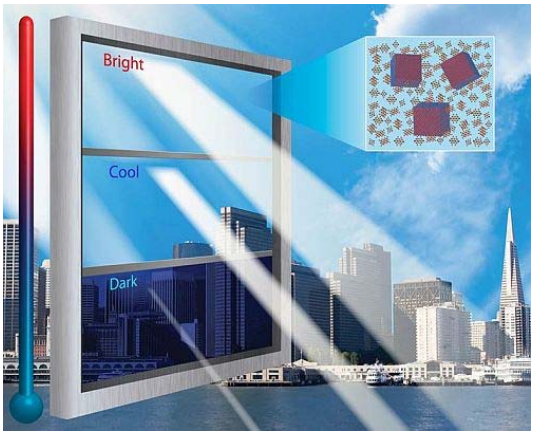
This project is the development of a complex solar system involving different pieces of equipment and different technologies in order to provide equipment compatible with energy requirements.

The innovation of this system is a new use of a classic solar hot water collector marketed ; it would be used for air heating and cooling in individual or collective housing, tertiary.

Solar vaccum tubes collector is integrated in a thermal loop which is composed by an air/water heat exchangers situated inside the habitat. Calories are transferred from solar collector to the habitat throught the air/water heat exchangers by natural convection or by forced convection with a pump.

Interior or exterior air (A) is drawn through turbine (1) and passes through the air filter (2). Solar collector warms the fresh air throught the heat exchanger (3) which is integrated in the thermal loop. collecting warm air is impel (B) through turbines (4). To control the thermal loop, regulation system with temperature setpoint is installed.





For a new habitation, Solar vaccum tubes collector is integrated in facade and cover by a smart dynamic glass as electrochromic glass with control of glass transparency. This system is used to control solar energy accordind seasons with high insolation and heat requirements. PV modules can be intalled to control electrochromic glass.