

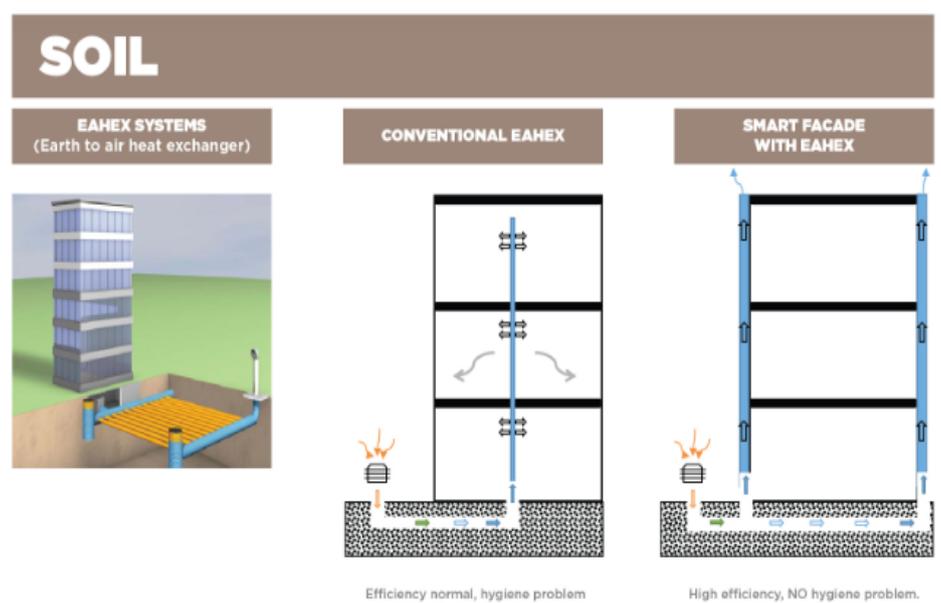
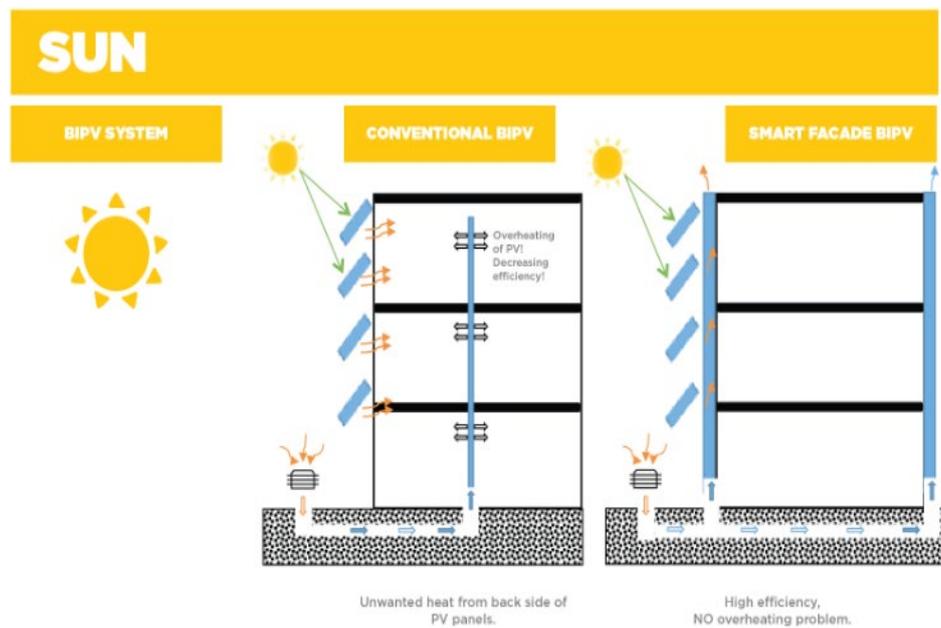
CORNET Call for Proposals: International Collective Research

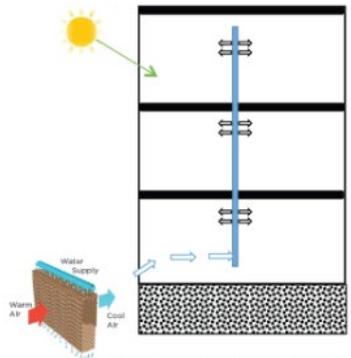
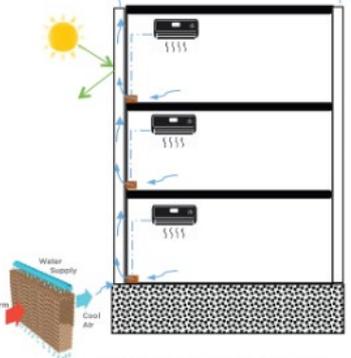
--- Project idea ---

Subject:	Adaptive Façade for Buildings and Greenhouses
Coordinator:	TOPRAK SMART FACADE SYSTEM LTD COMPANY
Other applicant(s):	
Sector:	<input type="checkbox"/> Materials <input checked="" type="checkbox"/> Process Engineering, Energy Technology and Environment <input type="checkbox"/> Business Management and Organisation <input checked="" type="checkbox"/> Construction and Production <input type="checkbox"/> Chemistry, Textile, Food, Health and Medical <input type="checkbox"/> Measurement and Information
Target group:	Facade and Building Energy Research, Energy Storage Technologies, BIPV
Proposal summary:	<p>The project idea (called SMART FAÇADE) is the adaptive facade which is integrated with HVAC system. The façade utilize small openings on the skin constructions for a continuous air circulation. Therefore, it makes the system more feasible than similar systems like «double facades». Thanks to the air circulating in the channels between these skins on the facade, the energy efficiency of the facade can be increased and the renewable energy sources can be used directly on the facade. www.akillicephe.com / www.smartfed.com</p> <p>Another advantage of the system is that it allows the ventilation with 100% fresh air in an economical way. As it is known, good ventilation of buildings is important to reduce the effect of the pandemics such as COVID19 . We assume that the amount of fresh air in the standards will increase in the coming periods. In this sense, the project has serves meaningful alternatives. (REHVA recommended to increase ventilation rates and not to use return air /recirculating air-https://www.rehva.eu/activities/covid-19-guidance).</p> <p>Example of usage areas are underground heat storage, BIPV technologies, evaporative cooling applications and energy efficient greenhouses.</p> <p>Although it is a good idea to benefit from underground heat, it cannot be applied very often due to the hygiene problem experienced in normal applications (dirt, bacteria etc. caused by condensation in the pipes) and the difficulty in integrating the air taken into the building with the existing ventilation system. SMART FACADE can receive underground air to the exhaust section of the «air channel», therefore, it does not experience any hygiene problems and is easily applied. Another example is “evaporative cooling” which is one of the cheapest cooling methods. It can also not apply easily in buildings due to hygiene</p>

problems and lack of integration with existing ventilation. One of the most interesting features of SMART FACADE is that it can benefit from evaporative cooling without any problem. Moreover, both the evaporative cooling of the outside air and the evaporative cooling of the exhaust air can be applied in high efficiency.

Lastly, Although solar panels are the most promising technology in terms of building energy saving, efficiency decreases due to overheating of the back sides of the panels in the summer and the building cooling energy load increases. The air circulation inside the SMART FACADE panels solves this problem of heat and increases the efficiency of the photovoltaic panels by 10-15%.



	<div style="text-align: center; background-color: #00aaff; color: white; padding: 5px; font-weight: bold; font-size: 1.2em;">WATER</div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center; width: 30%;"> <div style="background-color: #00aaff; color: white; padding: 2px; font-weight: bold; font-size: 0.8em;">EVAPORATIVE COOLING</div>  </div> <div style="text-align: center; width: 30%;"> <div style="background-color: #00aaff; color: white; padding: 2px; font-weight: bold; font-size: 0.8em;">CONVENTIONAL EVAPORATIVE COOLING</div>  <p style="font-size: 0.8em;">Hygiene problem should be prevented.</p> </div> <div style="text-align: center; width: 30%;"> <div style="background-color: #00aaff; color: white; padding: 2px; font-weight: bold; font-size: 0.8em;">SMART FACADE EVAPORATIVE COOLING</div>  <p style="font-size: 0.8em;">High efficiency, no hygiene problem. indoor and outdoor air evaporative cooling. Drainage water can be used for cooling.</p> </div> </div>
<p>Advantages for trade and industry:</p>	
<p>Dissemination concepts:</p>	<p>Adaptive Facades, Responsive Façade, Energy Efficient Facade</p>
<p>Profile of additional partners:</p>	
<p>Contact:</p>	<p>Name: ERCAN BASER Organisation: TOPRAK SMART FACADE SYSTEM LTD COMPANY E-mail: ebaser@akillicephe.com Tel: +90 312 350 99 90</p>