Buildings supplying their required energy (heat and electricity) from microalgae (**Figure 1**) can serve as an alternative building system. The mechanism of the process is as follows: first, water containing nutrients is being filled in the façade PBRs, where daylight and CO_2 are converted to algal biomass through photosynthesis; secondly, the biomass and heat generated by the façade element are transferred through a closed loop system to the plant room, where both forms of energy are exchanged by a separator and a heat exchanger, respectively. For the supply of hot water and heating the building, a hot water pump is used to adjust the temperature levels of the generated heat [62,63].

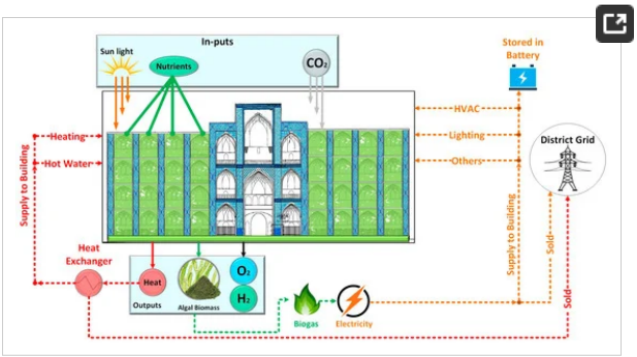

Figure 1. Schematic of algae-powered buildings.

The Algae Roof

CA7 2JN, United Kingdom

The Algae Roof is a green roof system that uses algae to help cool buildings and produce biofuel. The system can also be used to treat wastewater and reduce stormwater runoff.

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