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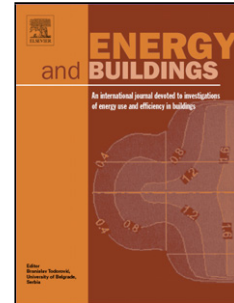
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# Optimizing photovoltaic self-consumption in office buildings

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## **ABSTRACT**

Building Integrated Photovoltaics (BIPV) in commercial and office buildings can be designed with the aim of reducing the electricity consumption from the conventional local grid. This paper stresses the importance of matching the photovoltaic (PV) generation local profile with the building's load shape to reach around 100 % self-consumption indexes and to improve the self-sufficiency degree of the building, without storage nor load management. For that purpose, this paper proposes a methodology that helps BIPV designers to achieve these targets. Its application to a real case shows that the different façades of the building envelope may play a role in the local PV production if their orientations receive sufficient insolation during the hours of electrical consumption. In particular, in the North Hemisphere the possibilities that offer all the external surfaces of the building that are not oriented to the North should be taken into consideration in a first approach, and then those which achieve the best production-consumption match should be analyzed and compared to select the optimum solution.

Keywords: photovoltaic self-consumption; load profile; electric consumption; self-sufficiency; PV generation; BIPV.

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