

## The Importance of Zenithal Lighting Systems for Natural Light Gains and for Local Energy Generation in Brazil

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**Abstract :** This paper presents an approach on the advantages of using adequate coverage in the zenithal lighting typology in various areas of architectural production, while at the same time to encourage to the design concerns inherent in this choice of roofing in Brazil. Understanding that sustainability needs to cover several aspects, a roofing system such as zenithal lighting system can contribute to the provision of better quality natural light for the interior of the building, which is related to the good health and welfare; it will also be able to contribute for the sustainable aspects and environmental needs, when it allows the generation of energy in semitransparent or opacity photovoltaic solutions and economize the artificial lightning. When the energy balance in the building is positive, that is, when the building generates more energy than it consumes, it may fit into the Net Zero Energy Building concept. The zenithal lighting systems could be an important ally in Brazil, when solved the burden of heat gains, participate in the set of pro-efficiency actions in search of "zero energy buildings". The paper presents comparative three cases of buildings that have used this feature in search of better environmental performance, both in light comfort and sustainability as a whole. Two of these buildings are examples in Europe: the Notley Green School in the UK and the Ison factory in Spain. The third building with these principles of shed's roof is located in Brazil: the Ipel's factory in São Paulo.

**Keywords :** natural lighting, net zero energy building, sheds, semi-transparent photovoltaics

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