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Towards a Sustainable Energy Future: Method Used in Existing Buildings to Implement Sustainable Energy Technologies

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Abstract : This article describes the development of a model that uses a method where openings are represented by single glass and double glass. The model is based on a healthy balance equations purely theoretical and empirical data. Simplified equations are derived through a synthesis of the measured data obtained from meteorological stations. The implementation of the model in a design tool integrated buildings is discussed in this article, to better punctuate the requirements of comfort and energy efficiency in architecture and engineering. Sustainability, energy efficiency, and the integration of alternative energy systems and concepts are beginning to be incorporated into designs for new buildings and renovations to existing buildings. Few means have existed to effectively validate the potential performance benefits of the design concepts. It was used a method of degree-days for an assessment of the energy performance of a building showed that the design of the architectural design should always be considered the materials used and the size of the openings. The energy performance was obtained through the model, considering the location of the building Central Park Shopping Mall, in the city of Cascavel - PR. Obtained climatic data of these locations and in a second step, it was obtained the coefficient of total heat loss in the building pre-established so evaluating the thermal comfort and energy performance. This means that the more openings in buildings in Cascavel – PR, installed to the east side, they may be higher because the glass added to the geometry of architectural spaces will cause the environment conserve energy.

Keywords : sustainable design, energy modeling, design validation, degree-days methods
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