

عنوان مقاله:

Small Size Wind Turbines in Built Environment: Influence of the Installation Site on the Potential Energy

محل انتشار:

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خلاصه مقاله:

The application of small wind turbines in top of the buildings has become an attractive solution for energy shortage. In this paper, a broad range of research has been conducted to investigate the flow modifications induced on the rooftop level of a selected building in built environment. A numerical analysis is performed using ANSYS Fluent to investigate the flow field characteristics on the building's rooftop area as a function of the installation height, upwind building height and the distance between the buildings. The results show good agreement with previous researches. Simulations results illustrate that there is a positive increment in both wind velocity and potential energy yield as the building height increases. It also indicates that the wind velocity and energy yield are decreased when the building distance increases. Additionally, the parallel buildings located at the sides of the installation building determine a significant influence on the wind characteristics. As the wind passes through the converging passage, the wind velocity and energy potential above the rooftop have surged up.

کلمات کلیدی:

numerical analysis; small wind turbines; installation site

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