



Designing and Optimization of Net-Zero Energy Buildings and Communities

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Message from the Guest Editor

Buildings are known as one of the world's largest energy end-user sectors. Moving towards a sustainable future requires the development of a path for transitioning to net zero energy buildings (NZEB). NZEBs are highly energy efficient buildings that can generate their own energy needs. From a building's architecture, materials and envelope to energy end-users including lighting, HVAC, plug loads, water heating and others must be properly selected, designed and optimized to yield the minimum energy consumption for a given climate zone and type of building. The design and integration of onsite renewable energy generation and storage must also be carefully addressed. Additionally, with the development of emerging concepts such as net-zero energy communities (NSEC), further studies in these areas are underway. A net zero-energy community (ZEC) features a significantly reduced energy need which is being covered by renewable sources. The purpose of this Special Issue is to collect research articles with a focus on the design and optimization of net-zero energy buildings (NZEB) and communities (NSEC).





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