



*applied sciences*



*Special Issue Reprint*

## **Sustainability in Energy and Buildings**

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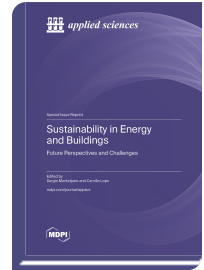
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This Reprint focuses on the urgent challenge of achieving sustainability in the building sector, one of the world's largest consumers of energy and contributors to CO<sub>2</sub> emissions. It brings together recent research and innovative approaches aimed at reducing energy demand and environmental impact throughout a building's life cycle. The contributions explore advancements in sustainable construction materials, the design and optimization of passive and active building envelopes, and the integration of efficient HVAC systems with smart control technologies. Renewable energy applications for buildings—such as photovoltaic and solar thermal systems, small wind turbines, and low-temperature geothermal solutions—are also examined. Furthermore, life cycle assessment (LCA) and life cycle cost (LCC) methodologies are presented as essential tools for evaluating and guiding sustainable design and operation. Collectively, this Reprint offers a comprehensive overview of emerging strategies and technologies shaping a more energy-efficient and environmentally responsible built environment.



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