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Sustainability and Energy-Efficiency in Buildings: A review

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Abstract : Moving toward sustainable development is among today's critical issues worldwide that make all industries, particularly construction, pay increasing attention to a healthy environment and a society with a prosperous economy. One of the solutions is to improve buildings' energy performance by cutting energy consumption and related carbon emissions, eventually improving the quality of life. Unfortunately, the energy demand for buildings is rising. For instance, in Europe, the building sector accounts for 19% of the global energy-related greenhouse gas (GHGs) emissions, the main contributor to global warming in the last 50 years, and 36% of the total CO2 emissions, according to European Commission 2019. The crisis of energy use demands expanding knowledge and understanding of the potential benefits of energy-efficient buildings. In this regard, the present paper aims to critically review the existing body of knowledge on improving energy efficiency in buildings and detail the significant research contributions. Peer-reviewed journal articles published in the last decade in reputed journals were reviewed using the database Scopus and keywords of Sustainability, Sustainable Development, Energy Performance, Energy Consumption, Energy Efficiency, and Buildings. All contributions will be classified by journal type, publication time, country/region, building occupancy type, applied strategies, and findings. This study will provide an essential basis for researchers working on missing areas and filling the existing gaps in the body of knowledge.

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