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Special Issue Reprint

Enhancing Building Resilience Under Climate Change

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Against the backdrop of escalating and far-reaching impacts of climate change, advancing the climate resilience of buildings has emerged as a top priority for architects, engineers, policymakers, and communities worldwide. Characterized by rising global temperatures, increasingly frequent and severe extreme weather events pose profound threats to the safety, durability, and functional integrity of the built environment. The benefits of embedding climate resilience into building design and operation are multifaceted and far-reaching. Climate-resilient buildings mitigate the risk of structural damage and asset loss during extreme weather events, in turn reducing insurance premiums and minimizing disruptions to livelihoods and daily operations. They also deliver significant energy efficiency gains and advance environmental sustainability through the integration of high-performance systems and low-carbon, durable materials. Beyond this, resilient design fosters improved occupant wellbeing by ensuring stable, safe, comfortable, and healthy indoor living and working environments. This Reprint addresses a comprehensive suite of interconnected topics spanning building physical structure and envelope performance, energy efficiency, building performance simulation, integrated water management, urban green infrastructure, and nature-based solutions. By embedding climate-resilient design principles and cutting-edge technologies into building practice, we can deliver built assets that not only withstand climate-related hazards, but also adapt and thrive amid a changing climate.



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