

## Smart Materials for Sustainable and Smart Infrastructure

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**Abstract:** Smart materials are the most significant in terms of technology in 21st-century. "Smart Materials" have a crucial role in construction technology. These innovative materials constitute an important part of smart building systems that are capable to detect its surrounding so that the smart materials behave similar to living systems. The design of smart materials involves highly integrated components and requires interdisciplinary knowledge. Smart materials are capable of adapting to their exterior surrounding. They alter their properties by applying exterior physical stimuli and thus adapt to their external environment in the best possible manner. In the process of adapting to their external environment, they involve various energy conversion processes. This mechanical energy is converted into electrical energy and vice versa by smart materials during their functioning. Smart materials are therefore predetermined and predesigned to perform as sensors and actuators as the need be. This paper discusses various types of smart materials used in the construction industry, their characteristics and applications in smart infrastructure.