

Nanotechnology Innovations for the Sustainable Buildings of the Future

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Abstract : Sustainability, being the urgent issue of our time, is closely related with the innovations in technology. Nanotechnology (NT), although not a new science, can be regarded relatively a new science for buildings with brand new materials and applications. This paper tends to give a research review of current and near future applications of nanotechnology (NT) for achieving high-performance and healthy buildings for a sustainable future. In the introduction, the driving forces for the sustainability of construction industry are explained. Then, the term NT is defined, and significance of innovations in NT for a sustainable construction industry is revealed. After presenting the application areas of NT and nanomaterials for buildings with a number of cases, challenges in the adoption of this technology are put forward, and finally the impacts of nanoparticles and nanomaterials on human health and environment are discussed.

Keywords : nanomaterial, self-healing concrete, self cleaning sensor, nanosensor, steel, wood, aerogel, flexible solar panel

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