World Academy of Science, Engineering and Technology
International Journal of Materials and Metallurgical Engineering
Vol:17, No:06, 2023

Nanotechnology in Construction as a Building Security

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Abstract : 'Due to increasing environmental challenges and security problems in the world such as global warming, storms, and terrorism', humans have discovered new technologies and new materials in order to program daily life. As providing physical and psychological security is one of the primary functions of architecture, so in order to provide security, building must prevents unauthorized entry and harm to occupant and reduce the threat of attack by making building less attractive targets by new technologies such as; Nanotechnology, which has emerged as a major science and technology focus of the 21st century and will be the next industrial revolution. Nanotechnology is control of the properties of matter, and it deals with structures of the size 100 nanometers or smaller in at least one dimension and has wide application in various fields. The construction and architecture sectors were among the first to be identified as a promising application area for nanotechnology. The advantages of using nanomaterials in construction are enormous, and promises heighten building security by utilizing the strength of building materials to make our buildings more secure and get smart home. Access barriers such as wall and windows could incorporate stronger materials benefiting from nano-reinforcement utilizing nanotubes and nano composites to act as protective cover. Carbon nanotubes, as one of nanotechnology application, can be designed up to 250 times stronger than steel. Nano-enabled devices and materials offer both enhanced and, in some cases, completely new defence systems. In the addition, the small amount of carbon nanoparticles to the construction materials such as; cement, concrete, wood, glass, gypson, and steel can make these materials act as defence elements. This paper highlights the fact that nanotechnology can impact the future global security and how building's envelop can act as a defensive cover for the building and can be resistance to any threats can attack it. Then focus on its effect on construction materials such as; Concrete can obtain by nanoadditives excellent mechanical, chemical, and physical properties with less material, which can acts as a precautionary shield to the building.

Keywords : nanomaterial, global warming, building security, smart homes
Conference Title : ICNNN 2023 : International Conference on Nanoscience, Nanotechnology and Nanoengineering
Conference Location : San Francisco, United States
Conference Dates : June 05-06, 2023