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## Efficiency of nanotechnologies in the high performance of buildings

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New research in the field of technological innovation, with nanotechnologies and nano-structured eco-active materials, smart materials that change according to meteorological and atmospheric flows, with new adaptive and smart models, etc. identify new processes in the efficient building of infrastructures in cities and territories, with low environmental impact and reduction of CO<sub>2</sub>. Objectives of innovation and sustainability with use of functional materials that mainly focus on optical, magnetic, electrical properties, such as those of semiconductor, magnetic materials, etc. with the dematerialized technologies and high performance in the building and use of sustainable materials with high solar transmittance, lightness, air quality and low thermal conductivity. So methodologies with the application of efficient nanostructured materials including silica aerogels, the doped materials by epoxy resins with carbon nanotubes (CNT), much stronger than steel, intelligent bio phase change materials (PCM), bioplastics, etc. Application of advanced materials such as aerographite, based on carbon nanotubes, with characteristics of resilience, strength, flexibility and durability, aimed at different uses in the building sector of the construction industry, for super-light energy accumulators, for purification devices of air and water. Distinguishing materials by environmental quality since recyclable, renewable and biodegradable, linked to chemical/physical, mechanical and technological, while denouncing criticality and application limits for the protection of human health. High performance requirements of architectural beauty even through transparency and surface gloss, with nanostructured materials ecoactive high performance, glassy and light-sensitive materials, iridescent and translucent colors, from thermal comfort with use of minimum thickness. The challenge is in the application of advanced materials in the emerging areas of digital fabrication for environmental sustainability and in the efficient, intelligent and sustainable building sector.

### Recent Publications

1. Mocerino C (2017) Sustainable identities in the technological esprit of architecture. *Journal of Civil Engineering and Architecture (JCEA)* 11(7):1934–7367.
2. Mocerino C (2017) Interoperable process: efficient systems in new constructive and product performances. *Journal of Civil Engineering and Architecture (JCEA)* 11(5):1934–7367.
3. Mocerino C (2016) Integration of the energy and building technologies. *Journal of Civil Engineering and Architecture (JCEA)* 10(12):1934–7367.
4. Mocerino C (2016) Technology innovation in digital architecture processes. *Journal of Civil Engineering and Architecture (JCEA)* 10(8):1934–7367.

### Biography

Consiglia Mocerino, graduated cum laude with a Master of Science degree in Architecture, PhD in Urban Recovery and Regeneration and specialist in Restoration of monuments, has held at the Faculty of Architecture, Sapienza University of Rome, teaching and research collaboration and teaching assignments, as a contract professor, in Architectural Technology. In the same Faculty she obtained the nomination of subject expert in the discipline of Technology of Architecture and Industrial Design. She is an expert in research on issues related to innovation and technological experimentation of systems and products in efficient, intelligent, low impact, environmentally friendly architectures, innovative materials and the application of third generation nanotechnologies.

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