Circular Economy and Built environment. Research and good practices for environmental sustainability

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In the context of environmental emergency of which the construction sector is one of the main causes – since it consumes 40\% of the (embodied and operational) energy and produces about a third of the total waste – and due to the ambitious objectives set by the international community and by many countries to reduce the environmental impact of buildings during their whole life cycle, this paper wants to make a contribution to the understanding of the state of the art on cycle-based research activities, experiments and good practices that the building industry and the academy have implemented in recent years. In particular, it refers to cycle-based theoretical and experimental actions involving process and product innovations at different scales (‘macro’, ‘meso’ and ‘micro’) of the built environment. They are capable of overcoming the traditional linear approach to use an approach aiming, on the one hand, to extend the service life cycle, and on the other, to evaluate construction systems designed to be disassembled and new bio-based materials, easily renewable and with a low embodied energy. In the end, the paper
highlights the problems that currently hinder its dissemination and identifies possible research actions that can favour, with the contribution of Architectural Technology, the transition to this new paradigm.

• Author(s) Biography (200 words each):

Francesca Scalisi, Architect and PhD, she is the Co-Founder and Head of the Research Department of DEMETRA Ce.Ri.Med. (Euro-Mediterranean Documentation and Research Center), Palermo (IT). She is a Member of the Editorial Board of Agathón | International Journal of Architecture Art and Design and a Member in several International Steering Committee as well as a Reviewer for various scientific Journals. She carried out research on Green Materials, Innovative Materials for Architecture, Nanomaterials, Energy Saving in Buildings. Her main Research Projects are ‘Natural and artificial innovative materials for architecture’, ‘Nanotechnologies for unfired clay bricks (tradition, innovation and sustainability)’, ‘Recovery and conservation of Architectural Heritage using nanostructured materials and innovative technologies’.

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