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## EDITORIAL

## Waste to Resource in the Sustainable Renovation of Buildings and Neighbourhoods

Following a thorough and lengthy procedure, we would like to thank all the contributors for their high quality papers, which comprise the Special Issue on “*Waste to resource in the sustainable renovation of buildings and neighbourhoods*” of the *Open Construction and Building Technology Journal*.

The topic of the Special Issue encompasses a large number of issues spanning the renovation of existing buildings and neighbourhoods for the reduction of the environmental impact, to the identification of core elements and assessment issues.

The field of sustainable renovation has become a new paradigm to the building agents. It seems that the numerous messages which constantly reiterate the need to go deeper into the development of Eco-Efficient solutions, to make the development being sustainable, have taken hold in the new generations of researchers and technicians. Researchers are involved in this process and are called to successfully encounter new challenges emerging from the increasing need for the minimization of the environmental impact of today’s city.

As is also reflected by the papers presented in the Special Issue, the continuous advances of the research in this field moves across two basic directions. On the one hand, there is the direct intervention on buildings and the study and analysis of this intervention, to minimize the environmental impact. Several approaches can be followed to assess the environmental impact reduction in buildings, neighbourhoods and housing estates.

On the other hand, the environmental minimization impact is pursued by means of reducing the generated construction and demolition waste either by studying techniques or reusing them. Construction and demolition waste are among the heaviest and most voluminous waste streams generated, meaning approximately the 30% of the waste generated in Europe. In Spain, the current State Framework Waste Management Plan 2016-2022 has fomented the use of recycled products. Furthermore, it is expected that the demand will continue to rise.

In this Special Issue, we are proud to present start-of-the-art research findings described in detail in six papers authored by 19 researchers of different universities in Spain, the Polytechnic University of Catalonia, the University Ramón Llul, the University of Cadiz and the University of Seville, among others, as well as research institutes such as the Valencia Institute of Building and the Institute of Architecture and Building Science. The papers deal with the study of the environmental impact to address CO<sub>2</sub> emission reduction as well as other purposes by proposing numerical, analytical approaches and experimental tests.

Four papers [1 - 4] are devoted to the direct intervention and the analysis of results achieved by it. In particular, the analysis of the measures applied on an energy retrofitting, shown with the consumption reduction and the cost of each measure, over a the renovation of a neighbourhood located in East Spain, in the city of Alicante [1]. The retrofitting process is presented by stages, concluding with the presentation of the improvements in energy consumption, inhabitant’s living standards and other results. Another analysis is gathered [2], being its purpose to show how efficient is to renovate building envelopes to meet energy, economic and CO<sub>2</sub> emission criteria, based on the study conducted in a neighbourhood in Catalonia. Furthermore, intervening by increasing the vertical extensions of buildings are also analyzed to improve standards of energy efficiency, safety and accessibility while refurbishing the housing block and

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remaining the buildable space. The results are obtained by the technique application in the area of the Eixample in Barcelona [3]. The leitmotiv of these studies remains in the need to consider the building renovation instead of the demolition, to reduce the effects on the environment.

Paper [4] deals with the determination of the scope of the tools for sustainability assessment of structures in the Spanish legislation while identifying the aspects that have yet to be covered, especially in the case of foundations and structural refurbishment of singular buildings [4].

As mentioned earlier, the minimization of the environmental impact in buildings and neighbourhoods is pursued by different approaches. The other here presented is to include strategies to reduce potential environmental impact of building considered for demolishment. The intervention on the emergency repair of a residential building in South Spain, Seville, affected by a soil displacement, allows to identify the generated construction and demolition waste and to apply waste reduction techniques in paper [5]. Finally, paper [6] develops a new infill piece by reusing ceramic waste from demolition works. The piece is intended for use in floors as part of rehabilitations.

In summary, on behalf of the Journal, we would like to express our gratitude to all the authors of the papers as well as the reviewers for their systematic and innovative work.

### CONFLICT OF INTEREST

The author confirms that this article content has no conflict of interest.

### ACKNOWLEDGEMENTS

Declared none.

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