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EDITORIAL

RESEARCH PERSPECTIVES IN THE DOMAIN OF THE BUILT ENVIRONMENT

Riccardo Gulli

DA - Dipartimento di Architettura, Università di Bologna, Bologna (Italy)

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This Issue presents research contributions from seven Italian university groups: Ancona, Bari, Bologna, Catania, Messina, Sapienza Rome, and Salerno. Two primary criteria marked the selection process. The first one concerns adherence to the themes represented by the three main sections of the Journal: 1) Construction history and preservation; 2) Construction and building performance; 3) Building and design technologies. The second one regards the scientific approach adopted by the researchers based on a two-way relationship between theory and practice. This correspondence concerns both methods and tools, ranging from historical and process issues to experimental testing.

The first cluster can be identified for papers presented by the researchers of the University of Bari (De Fino M., Fatiguso F., *Brick masonry staircases of the early 20th century: historical research, condition assessment and diagnostic investigation of a “transition” construction type*), the Sapienza University of Rome (Ferrero M., Arena G., Ciardiello A., Rosso F., *The marble envelope of the Casa delle Armi by Luigi Moretti: documentary and experimental knowledge finalized to digital modeling*), and the University of Messina (Lione R., Fiandaca O., Minutoli F., Cernaro A., Palmero L.M., *The disused precious stone elements are not CDWaste. A digital management chain to save them*). These three papers follow the same way to combine historical investigation with diagnostic and process analysis finalized to safeguard the studied artifact. In the first case, the object of interest is represented by the masonry staircases from the early 20th century in central-southern Italy, while the other two contributions focus on stone cladding from the 1920s-1930s Italian architecture. The leading feature of these three works

is the importance credited to the knowledge of the object, that is the prerequisite for deriving the methods and aims of the investigation: instrumental, in the case of the Bari research group; procedural and related to the use of digital Historical Building Information Modeling (HBIM), in the other two cases.

The second type of study is oriented to investigate the redevelopment and enhancement of existing heritage, from the urban to the building scale. The works presented by the researchers of the University of Salerno (D’Andria E., Fiore P., Sicignano E., *Proposal for a new housing model for the inland areas regeneration. The BioVillage 4.0*) and the University of Bologna (Dragonetti L., Prati D., Ferrante A., *Impact of modeling on the assessment of energy performance in existing buildings: the case of Concordia Sagittaria*) belong to this domain. For the Salerno research group, the focus is the preservation of the historic village’s identity and possible strategies for their re-functionalization; in the case of Bologna, the aim is the expeditious analysis methods for energy savings of the residential building stock. In both cases, the inquiry includes the topic of the active participation of inhabitants in defining design choices.

Finally, the four contributions presented by the University of Catania (Vitale M., Cascone S.M., *Orange peels as a potential ecological thermal insulation material for building application*; Tardo C., Margani G., *Technological analysis of a prefabricated timber-based system for the integrated renovation of RC framed buildings*; Monteleone A., Rodonò G., Gagliano A., Sapienza V., *SLICE - Solar Lightweight Intelligent Component for Envelopes: application for the ICARO pavilion*) and the University of Ancona (Marchione F., Agliata R., Munafò

P., *Application of adhesive technology to a new type of glazed panel for curtain walls with an integrated frame*) deal with the experimentation of innovative building systems and components in terms of theoretical investigation and experimental testing. The *trait d'union* of these research works can be identified in environmental impacts and structural safety, from the scale of buildings to

that of materials. Indeed, this scaling dimension, framed within the broad domain of the built environment, constitutes the focus of the TEMA Journal, as a bridge between the two worlds of Construction Engineering and Architecture. This vision embraces the complex and multi-sectoral dimension of knowledge, from objects to processes, including digital ones.