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UNIVERSITY OF CANTABRIA

Civil Engineering School

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Building Technology R&D Group (GTED-UC)

Avenue Los Castros s/n 39005 SANTANDER (SPAIN)

Tel: +34 942 201 738 (43) Fax: +34 942 201 747

E-mail: rehabend@unican.es

www.rehabend.unican.es

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THE MODERN MOVEMENT HERITAGE: PROTO-BIOCLIMATIC SOLUTIONS AND BUILDING ELEMENTS

Franchini, Caterina[1]; Mele, Caterina[2]

1: Responsible Risk Resilience Centre; Dep. of Structural
Geotechnical and Building Engineering
Politecnico di Torino
e-mail: caterina.franchini@polito.it, web: http://www.r3c.polito.it; http://www.diseg.polito.it/en/

2: Responsible Risk Resilience Centre; Dep. of Structural, Geotechnical and Building Engineering
Politecnico di Torino
e-mail: caterina.mele@polito.it, web: http://www.r3c.polito.it; http://www.diseg.polito.it/en/

KEYWORDS: Modern movement heritage; proto-bioclimatic; solar shading solutions; sustainable heritage; passive thermal control.

ABSTRACT

Before the publication of the book *Design with climate: a bioclimatic approach to architectural regionalism* (1963), which established its author, V. Olgyay, as an international figure in the bioclimatic design, several works of the Modern Movement (hereafter MoMo) had already revealed a variety of passive thermal solutions/elements.

Le Corbusier's *brise-soleil* has spread throughout the world the concern of merging *arté* and *teknê* in the design of shading elements increasingly adaptable to control changes in light radiation, since the 1920s. Natural ventilation building solutions are integral parts of the iconic architectures designed by F.L. Wright masterfully revealing some paradigms of climatic sustainability into the material heritage of the MoMo. Forward-thinking Italian architects have started testing an impressive combination of new thermo-insulation autarkic materials (e.g. Eraclit, Populit, Faesite) to design performative climate-responsive building envelopes also suitable for colonial buildings.

By considering the 'anatomy' of the building, our study focuses on the identification, analysis, and categorisation of proto-bioclimatic building solutions conceived by the architects of the MoMo to achieve both the clime adaptability of building elements and adaptation of the International Style to diverse climatic conditions.

Our critical survey goes beyond a single discipline as it is the result of an integrated process of interpretation of the history of architecture, building design and construction history. This process has assumed a reductionist paradigm to highlight those systems seeking to reduce the negative impact of the building through its passive thermal efficiency.

Looking under the lens of thermal sustainability the building solutions of the MoMo legacy, our study aims to foster further progress in improving the resilience to climate change in design practices devoted to both: the conservation of the MoMo architecture and renovation of the 20th-century building stock.

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