POLITECNICO DI TORINO
Repository ISTITUZIONALE

Carbon fiber recycling from composite: A multimethodological approach combining pyrolysis experimental data, energy modeling, and environmental analysis

*Original*
Carbon fiber recycling from composite: A multimethodological approach combining pyrolysis experimental data, energy modeling, and environmental analysis / Leucci, L., Demichelis, F., Bensaid, S., Mancini, G., Luciano, A., Fino, D.. - In: COMPOSITES. PART A: APPLIED SCIENCE AND MANUFACTURING. - ISSN 1359-835X. - 210:(2026), pp. 1-13. [10.1016/j.compositesa.2026.110094]

*Availability:*
This version is available at: 11583/3014067 since: 2026-08-26T09:56:29Z

*Publisher:*
Elsevier

*Published*
DOI:10.1016/j.compositesa.2026.110094

*Terms of use:*

This article is made available under terms and conditions as specified in the corresponding bibliographic description in the repository

*Publisher copyright*

(Article begins on next page)

07 November 2026

University of Cantabria / University of Granada

Organizers:

# REHABEND 2020

## Euro-American Congress

## CONSTRUCTION PATHOLOGY, REHABILITATION TECHNOLOGY AND HERITAGE MANAGEMENT

Granada (Spain) - March 24th-27th, 2020

Sponsor entities:

# *REHABEND 2020*

## *CONSTRUCTION PATHOLOGY, REHABILITATION TECHNOLOGY AND HERITAGE MANAGEMENT*

*(8th REHABEND Congress)*

**Granada (Spain), March 24th-27th, 2020**


PERMANENT SECRETARIAT:

**UNIVERSITY OF CANTABRIA**

Civil Engineering School

Department of Structural and Mechanical Engineering

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

8TH EURO-AMERICAN CONGRESS ON CONSTRUCTION PATHOLOGY, REHABILITATION TECHNOLOGY AND HERITAGE MANAGEMENT

# REHABEND 2020

ORGANIZED BY:

UNIVERSITY OF CANTABRIA (SPAIN)
www.unican.es // www.gted.unican.es

UNIVERSITY OF GRANADDA (SPAIN)
www.ugr.es

CO-ORGANIZERS ENTITIES:

CHILE-UNIVERSIDAD AUSTRAL DE CHILE

ITALY-POLITÉCNICO DI BARI

MEXICO-UNIV. MICHOACANA DE SAN NICOLÁS DE HIDALGO

PERU-UNIVIVERSIDAD NACIONAL PEDRO RUIZ GALLO

PORTUGAL-UNIVERSIDADE DE AVEIRO

PORTUGAL-INSTITUTO SUPERIOR TÉCNICO | UNIV. DE LISBOA

SPAIN-TECNALIA RESEARCH & INNOVATION

SPAIN-UNIVERSIDAD DEL PAÍS VASCO

SPAIN-UNIVERSIDAD POLITÉCNICA DE CATALUÑA

SPAIN-UNIVERSIDAD DE BURGOS

SPAIN-UNIVERSIDAD POLITÉCNICA DE MADRID

SPAIN-UNIVERSIDAD DE SEVILLA

SPAIN-UNIVERSIDAD EUROPEA MIGUEL DE CERVANTES

UNITED STATES OF AMERICA-UNIVERSITY OF MIAMI

URUGUAY-UNIVERSIDAD DE LA REPÚBLICA

CONGRESS CHAIRMEN:
**IGNACIO LOMBILLO**
**MARIA PAZ SÁEZ**

CONGRESS COORDINATORS:
**HAYDEE BLANCO**
**YOSBEL BOFFILL**

EDITORS:
**IGNACIO LOMBILLO**
**HAYDEE BLANCO**
**YOSBEL BOFFILL**

INTERNATIONAL SCIENTIFIC ADVISORY COMMITTEE:
**HUMBERTO VARUM – UNIVERSITY OF AVEIRO (PORTUGAL)**
**PERE ROCA – TECHNICAL UNIVERSITY OF CATALONIA (SPAIN)**
**ANTONIO NANNI – UNIVERSITY OF MIAMI (USA)**

The editors does not assume any responsibility for the accuracy, completeness or quality of the information provided by any article published. The information and opinion contained in the publications of are solely those of the individual authors and do not necessarily reflect those of the editors. Therefore, we exclude any claims against the author for the damage caused by use of any kind of the information provided herein, whether incorrect or incomplete.

The appearance of advertisements in this Scientific Publications (Printed Abstracts Proceedings & Digital Book of Articles - REHABEND 2020) is not a warranty, endorsement or approval of any products or services advertised or of their safety. The Editors does not claim any responsibility for any type of injury to persons or property resulting from any ideas or products referred to in the articles or advertisements.

The sole responsibility to obtain the necessary permission to reproduce any copyright material from other sources lies with the authors and the REHABEND 2020 Congress can not be held responsible for any copyright violation by the authors in their article. Any material created and published by REHABEND 2020 Congress is protected by copyright held exclusively by the referred Congress. Any reproduction or utilization of such material and texts in other electronic or printed publications is explicitly subjected to prior approval by REHABEND 2020 Congress.

ISSN: 2386-8198 (printed)

ISBN: 978-84-09-17871-1 (Printed Book of Abstracts)
ISBN: 978-84-09-17873-5 (Digital Book of Articles)

Legal deposit: SA - 132 - 2014

Printed in Spain by Círculo Rojo

**CODE 261**

# 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.

www.rehabend.unican.es

**Coordinator:**

Universidad de Cantabria
GTED-UC
GRUPO DE TECNOLOGÍA DE LA EDIFICACIÓN

**Co-Organizers:**

UPV EHU
UPC
UNIVERSIDAD DE BURGOS
universidade de aveiro
TÉCNICO LISBOA
tecnalia
UEMC Universidad Europea Miguel de Cervantes
MIAMI