



# REHABEND 2014

## Latin American Congress

# CONSTRUCTION PATHOLOGY, REHABILITATION TECHNOLOGY AND HERITAGE MANAGEMENT

April 1-4, 2014  
Santander - Spain

Organized by:



# ***REHABEND 2014***

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

*(Fifth REHABEND Congress)*

**Santander (Spain), April 1-4, 2014**

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The REHABEND 2014 Congress on Construction Pathology, Rehabilitation Technology and Heritage Management is going to take place in Santander (Spain), from 1 to 4 April 2014. The event is organized by the University of Cantabria, through its Building Technology R&D Group (GTED-UC), the Technological Institute of Construction of Valencia (AIDICO) and a Private Center for Applied Research (TECNALIA Research & Innovation).

REHABEND 2014 continues the series of the four previous REHABEND international events, which have been developed since 2006 in different Spanish cities. In 2006 and 2007 in Santander (organized by University of Cantabria), in 2008 in the Mediterranean city of Valencia (organized by AIDICO) and in 2009 the event took place in Bilbao organized by Tecnalía Research & Innovation. In 2016 REHABEND is going to take place in Burgos, Spain, and in 2018 it will be developed in an American country.

Construction Pathology, Rehabilitation Technology and Heritage Management currently have great importance for construction sector. This prompted the organizers to propose a new technical event about these topics in 2014. This event aimed to collect the advances obtained in the last years in the theoretical knowledge and practical realizations carried out about the referred topics. The Congress met more than 250 technical contributions coming from professionals, academics and specialists, from 17 countries.

Under these premises and the successful previous editions, the Congress was sponsored by the Government of Spain, the Regional Government of Cantabria, the Municipality of Santander, the University of Cantabria, the Menéndez Pelayo International University, Mapei and Sika. In addition, several Universities, Technical and Professional Associations, Institutes, Foundations and Companies committed their collaboration in order to the success of this initiative.

REHABEND 2014 organizers, University of Cantabria, AIDICO and TECNALIA, would like to thank the multiple received supports: to the sponsoring and collaborating Entities; to the Scientific Committee members for their hard work in the revision of the different technical contributions, ensuring the required level of quality of an international event; to the Speakers of the plenary sessions and to the different speakers for their relevant contributions and, in general, to the people who attended the congress for the confidence shown in the event. Sincerely, Many thanks to all.



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## TOPICS

### **1.- PREVIOUS STUDIES**

- 1.1.- Multidisciplinary studies (historical, archaeological, etc.).
- 1.2.- Heritage and territory.
- 1.3.- Urban regeneration.
- 1.4.- Economical and financial policies.
- 1.5.- Social participation processes and socio-cultural aspects in rehabilitation projects.
- 1.6.- Construction pathology.
- 1.7.- Diagnostic techniques and structural assessment (no destructive testing, monitoring and numerical modeling).
- 1.8.- Guides and regulations.

### **2.- PROJECT**

- 2.1.- Theoretical criteria of the intervention project.
- 2.2.- Traditional materials and construction methods.
- 2.3.- Novelty products applicable and new technologies.
- 2.4.- Sustainable design and energy efficiency.

### **3.- BUILDING INTERVENTION**

- 3.1.- Intervention plans.
- 3.2.- Rehabilitation and durability.
- 3.3.- Reinforcement technologies.
- 3.4.- Restoration of artworks.
- 3.5.- Conservation of industrial heritage.
- 3.6.- Examples of intervention.

### **4.- MAINTENANCE**

- 4.1.- Construction maintenance.
- 4.2.- Preventive conservation of built heritage.

### **5.- DIFFUSION AND PROMOTION**

- 5.1.- Heritage and cultural tourism.
- 5.2.- Teaching and training.
- 5.3.- New technologies applied to the heritage diffusion.
- 5.4.- Accessibility to cultural heritage.
- 5.5.- Working networks in the cultural heritage.
- 5.6.- Built heritage management.



# ABSTRACTS



**1.- PREVIOUS STUDIES**
**1.1.- Multidisciplinary studies (historical, archaeological, etc.).**

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**CODE: 2.2.03****TRADITIONAL COATINGS OF TABIQUE WALLS AND THEIR THERMAL INSULATION CONTRIBUTION****Paiva, Anabela<sup>1,2\*</sup>, Cunha, Sandra<sup>1,2</sup>, Soares, Nuno<sup>1</sup>, Ferreira, Débora<sup>3</sup>, Varum, Humberto<sup>4</sup>, Lanzinha, João<sup>5,2</sup>, Pinto, Jorge<sup>1,2,6</sup>**

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**KEYWORDS:** tabique, wall, traditional construction, thermal insulation behaviour, sustainable construction.

**ABSTRACT**

This research work is focused on studying the thermal behaviour of traditional tabique wall systems. Therefore, different tabique wall samples were built and their thermal behaviour was experimentally assessed in laboratory. In general, a tabique wall system is formed by a timber structure frame which is filled with earth or an earth based render. A tabique wall may be exterior or partition. In both cases, it may have a contribution in the overall structural behaviour of a building. At the same time, the fact that a tabique wall may be exterior increases its pathology likelihood and justifies the application of a complementary exterior coating such as metal corrugated sheets or schist tiles. These were the studied traditional building solutions in terms of thermal insulation behaviour. The wall samples were prepared with materials which were collected from tabique buildings and they were applied according to the traditional techniques. The obtained outputs may contribute for the knowledge of this traditional building technique and they may be helpful in rehabilitation processes of this type of building, in particular, concerning thermal insulation improvement.

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