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CONSTRUCTION PATHOLOGY, REHABILITATION TECHNOLOGY AND HERITAGE MANAGEMENT

REHABEND 2018

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# REHABEND 201

## Euro-American Congre

## CONSTRUCTION PATHOLOGY, REHABILITATION TECHNOLOGY AND HERITAGE MANAGEMENT

Caceres (Spain) - May 15th-

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The growing relevance that it has reached in the current society the refurbishment, rehabilitation, conservation and maintenance of existing buildings and infrastructures, in particular the historical heritage, has revealed the need to calibrate effective methods of analysis, planning and implementation of the constructions rehabilitation measures, as well as maintenance and management strategies. This will amplify economic flows destined to the rehabilitation sector, and hence, the need to improve the mentioned methodologies.

Similarly, there is a prevailing need to consolidate a debate forum in order to update the state of knowledge of the technologies applied to diagnostics, rehabilitation, maintenance and management of the built heritage. REHABEND Congresses on 'Construction Pathology, Rehabilitation Technology and Heritage Management' aim to bring together the progress made in recent years in the theoretical and experimental knowledge carried out in these topics.

The main aim of the event is to promote the knowledge transfer between different countries who are working on this field of research.

This volume contains the abstracts presented at the REHABEND 2018 conference, which was carried our in Caceres, Spain, May 15th – 18th, 2018.

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# *REHABEND 2018*

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

*(7th REHABEND Congress)*

**Caceres (Spain), May 15th-18th, 2018**


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CODE 171

# BUILDING TECHNOLOGIES IN THE HISTORIC CENTRE OF IGLESIAS

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**EYWORDS**: Industrial revolution; middle ages; iglesias; building technology

**BSTRACT**

ıe historic centre of Iglesias, small town located few kilometres far from the coast in the south-west ırdinia, is an outstanding document with 800 years of history.
; story is linked with the exploitation of mineral resources of the Sulcis sub-region. We know that lesias exists since Middle Ages when the earl Ugolino della Gherardesca invested in its development a "garrison" of the area.
he building fabric is a palimpsest in which building types and technologies from various times coexist, ose of the initial medieval phase and those of the more recent XIX – XX century urban ansformations. These transformations were stimulated by the capitals and the intellectual resources at reunited in Iglesias for a new period of mineral resources exploitation.
ow the historic centre is affected by a political strategy that aims at improving the living conditions ıd, more generally, at the development of the city through the valorisation of its cultural identity. This rategy calls for the arrangement of the urban plans. Recently, in the framework of a collaboration :tween DICAAR and Iglesias municipality, our research group has been asked to analyse the historic ıilding fabric as a preliminary study to support the definition of the operational aspects of the historic ıntre urban plan.
his paper describes the technological characteristics of the building fabric, in which local traditional ıilding techniques, that belong to the pre-industrial economy, merged with technological innovations ought by the mining industry. These were used first for public and then for residential buildings.
his work will spread the knowledge about this human settlement, that is characterised by an unusual story and that is few investigated by the building technology point of view. This study will be useful r those that will work for its rehabilitation and for comparative analysis with other case studies.



CODE 176

# FIRE BEHAVIOR OF COMPACTED EARTH BLOCKS

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**KEYWORDS**: CEB; Compacted earth block; resistance test fire.

**ABSTRACT**

The main concern of the fire regulation with the occurrence of fire is not related to the interest of preserving the patrimony, but rather to ensure that the structure remains with its preserved carrying capacity for a period of time considered sufficient to assure the total evacuation of people.
The work developed is about the safety of buildings in compacted earth blocks (CEB) when subjected to fire situations. The results of resistance achieved by the CEB during a fire and after being cooled are analysed with the main objective of increasing the knowledge and thus ensuring the safety of the property and mainly of the people.
It is also the objective of this work to understand the influence of the stabilizers, responsible for increasing the resistance of the CEB, through thermomechanical resistance tests in steady state. For this, 5 stabilizers mixtures using lime and cement were analysed, and different behaviour responses of the material subjected to the fire action were obtained. An analysis of the residual compression tests with the sample that attained the best performance is also performed.
The best performance was obtained for the composition with the highest amount of stabilizers, with 10% of lime and 10% of cement. However, the composition with 5.0% of lime and 7.5% of cement showed a resistance close to the previous one, this composition being a better choice due to the smaller amount of stabilizers, being more economical and more sustainable.