

Vernacular Architecture

≡ *Towards a Sustainable Future* ≡

Editors

C. Mileto

F. Vegas

L. García

V. Cristini

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C. Mileto, F. Vegas, L. García Soriano & V. Cristini
Universitat Politècnica de València, Spain



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Cover photo: Vernacular dwellings at Rincón de Ademuz (Valencia). Picture by Vegas & Mileto

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Local Seismic Culture in Portugal: Melides dwellings, a reactive approach case study

F. Gomes, M. Correia, G. Duarte Carlos & D. Viana
CI-ESG—Escola Superior Gallaecia, Vila Nova de Cerveira, Portugal

ABSTRACT: Vernacular architecture has outstanding examples on the adoption of strategies for the improvement of structural building performance and construction systems, but also on the application of reinforcement measures. Special cases that combine local building culture, with structural poor materials and a history of low-medium regular seismic activity are suitable case studies that can provide interesting seismic-resistant strategies within the above-mentioned concept. This paper addresses Melides case study, located in the Southwest Coast of Portugal. The research is developed under the framework of the FCT project ‘SEISMIC-V: Vernacular Seismic Culture in Portugal’, which consists on identifying seismic resistant strategies and elements that can be recognised in Portuguese vernacular heritage. Even, if some of the identified case studies have no longer active building cultures, the overall study of their legacy demonstrates a wide range of approaches, rich in solutions of prevention and/or reaction approach.

1 INTRODUCTION

Vernacular architecture by its intrinsic nature has relevant examples, regarding the adoption of strategies to improve building performance, when facing earthquake occurrences. However, very little research has been clearly directed to identify local seismic culture in vernacular heritage. This gap in knowledge made the research team address a consistent research throughout Portugal. As a result, six regions were selected to study, where local seismic culture in vernacular heritage could be acknowledge. These regions were located in the south of continental Portugal, and in Azores islands. Specific case studies that met the criteria for selection were identified and are under greater study.

The present research was developed in the framework of the project ‘SEISMIC-V: Vernacular Seismic Culture in Portugal’, funded by FCT—National Portuguese Foundation for Science and Technology. The research Centre CI-ESG, at Escola Superior Gallaecia, coordinates the research project, with the partnership of the Engineering Departments of the University of Aveiro and the University of Minho. The project consists on identifying the seismic resistant strategies and elements that can be acknowledged in the national vernacular heritage.

Although part of the identified case studies revealed a non-active building culture, the overall study of its legacy demonstrated a wide range of solutions with a preventive and/or reactive approach. One of the identified case studies is Melides, due to historical and recurrent seismic activity. Melides

presents a constructive culture based on the reinforcement of the constructive systems. As a reaction to the impact of earthquakes, the population developed reactive responses, through structural reinforcement features, applied in the inhabitants’ houses.

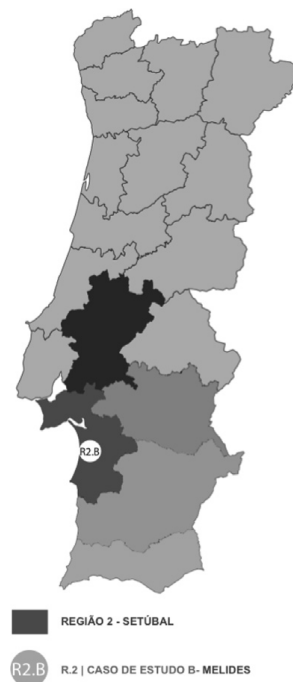


Figure 1. Map of Portugal with location of Melides case study and with reference, in the south of the country, to the regions prone to seismic occurrence (Credits: CI-ESG, 2014).