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Cultural built heritage and intervention criteria: A systematic analysis of building codes and legislation of Southern European countries



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ABSTRACT

Several scholars have recently pointed out difficulties when intervening on old and historical buildings due to the inadequacy and incompatibility of actual codes' requirements in relation to the particular constructive, architectural and material characteristics of built heritage. As a result, this study aims identifying criteria to support a holistic methodology that assures maximum preservation of built heritage through minimum, but sustained interventions. In particular, it aims identifying heritage categories and values, as well as measures and levels of intervention through a systematic analysis of the codes and standards involving protection, conservation, rehabilitation and control of interventions on built heritage of three Southern European countries with similar cultural approaches: Italy, Spain and Portugal. The wide reflection and comparison of these documents allows discussing and pointing out different (and common) approaches and criteria; in particular, it underlines the need for inventorying and cataloguing methodologies and procedures.

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1. Introduction

The evolution of the concept of conservation and preservation of cultural built heritage at the international level is listed by international charters and conventions regarding the multidisciplinary approaches on intervention on built heritage, appealing to their maximum conservation [1]. In particular, the debate involving the protection and conservation stands that built heritage has value as a whole, i.e. for its constructive, material and typological characteristics, and that it should maintain its social function, responding to current lifestyles, avoiding threats from long-term neglect, obsolescence and other forms of deterioration [2]. The theme about intervention on built heritage emerged from these discussions in response to the prominent degradation of areas with particular patrimonial value, such as historic sites and ensembles, some of them now included in the list of UNESCO cultural heritage, such as the Historic centre of Porto.

Due to inadequacy and incompatibilities of the actual building codes and standards requirements to the particular construction, architectural and material characteristics of existing buildings, several scholars are targeting the urgent need to adapt the legislation that regulate the construction sector to allow more flexible and proportional interventions on built heritage [3,8]; significant changes

have already been made to some of these regulations, emphasizing the importance of a correct assessment of the constructions characteristics before any intervention. The importance of re-using old buildings has been also emphasized, based on cultural and sustainability issues [3,4], as well as the relevance of assessing peoples social needs and expectations, so that they can be reflected in the functional requirements and housing conditions of legislation [7].

These studies move to a broader and more flexible concept of habitability, which goes beyond the sole consideration of housing, indicating the necessity to organize the functions in the house according to the needs of its residents [6,7]. They also reveal the importance of ensuring consistency and compatibility between the building codes and standards involving different specialities, to preserve the identity and authenticity of built heritage.

2. Research aims

The purpose of this paper is to develop a comprehensive and comparative study of different building codes and standards related to the intervention on built heritage. Focusing on three Southern European countries with comparable cultural approaches – Italy, Spain and Portugal – it will be possible to identify categories and heritage values, inventory and cataloguing processes, as well as intervention levels. This systematic analysis will substantiate the importance of these issues for the need to establish flexible and minimum criteria of intervention to achieve maximum preservation of built heritage.

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An overview of the building codes and legislation of these three countries is presented in section 3. The following sections develop a discussion focusing on the importance of criteria and measures to support an integrated approach in built heritage intervention.

3. Building codes and legislation of Southern European countries: a systematic analysis

3.1. Materials and methods

The building codes and standards of these three countries were created and matured in distinct contexts of time and space and under the influence of particular historic events. Moreover, they are associated to specific techniques and materials, giving place to distinct built heritage values and protection aspects. This section gives an overview on the situation concerning the codes and standards related to the protection, conservation, rehabilitation and control of interventions in built heritage, as well as on the importance of adapting technical regulations and standards to ensure built heritage conservation. The data collection process relied on the documental analysis of building codes and regulations. It also involved the exchange of ideas through interviews of governmental and academic institutional experts, as well as local researchers and municipal experts.

3.1.1. Italian context

Italy is a paradigmatic case in theoretical and technical terms, presenting progressive developments over time, especially since the post-2nd world war period. Today, the Italian codes and standards related to intervention on built heritage are organized in three levels: national, regional and municipal. The first level contains a code for the protection of cultural assets, *Codice dei beni culturali e del paesaggio* [9] (60 years after the first standard that concerned the protection of cultural heritage was implemented in 1939). This new code includes landscape, pointing out the importance of protecting the whole territory; it puts together all the legislative dispositions of cultural heritage, clarifying at the same time the different categories and values associated with [10]. Also, at national level, there are standards that control and support the interventions in the overall built heritage, such as *Norme per l'edilizia residenziale* [11] and *Norme in materia di controllo dell'attività urbanistico-edilizia* [12]. These standards contribute to define measures and levels of intervention on built heritage at both regional and municipal levels and also of preservation of housing conditions in each region and municipality [13]. Besides, there are standards regarding the technical and functional aspects, such as *Norme Tecniche per le Costruzioni* (NTC) [14], which establish different levels of intervention on existing buildings (adequacy, improvement and local repairs), especially for structural interventions on built heritage [15]. Additionally, there are regulations regarding fire safety, accessibility, comfort and acoustic conditions that should be applied to built heritage. However, some authors defend that the goal of preserving and protecting architectural heritage and the goal of upgrading old building stock to up-to-date requirements, especially to environmental ones, often collide [5]. On the other hand, scholars and technicians demonstrate that it is essential to design methods and tools based in inventory and cataloguing processes and in structural studies to balance the conservation issues and the housing and safety requirements [5,16]. These results are nowadays reflected in the national codes and legislation [9]. It is relevant to highlight that in Italy, there is a law that compiles the all national legislation in a single document, *Testo unico delle disposizioni legislative e regolamentari in materia edilizia* [17].

The regional laws devise from the national codes and standards providing general guidelines with uniform and clear criteria that

oversee the municipal level. Finally, at the last level, there is the municipal plan (*Piano Regolatore Generale* [PGR]) which is approved by the provincial office and the municipal heritage guardianship department. The PGR, created at the local level, allows a better control of the interventions on built heritage, as defended by Franceschini [13]. Being supported by an inventory and cataloguing process, developed by municipal technicians, it results in measures and levels of intervention that depend on the building age and the particular characteristics and elements that provide it with particular value [16]. These measures and procedures aim the maximum conservation and preservation of the built heritage characteristics (Fig. 1).

The efforts and advancements made by governmental bodies and scholars in Italy to improve national and regional laws concerning the conception of a general regulatory plan for the historic centres, promotes old urban fabrics [13] and establishes a closer relationship between historic centres and territory, allowing a better requalification of cultural built heritage, while seeing conservation as an integrated process [10,15,16]. As a result, the interventions on built heritage are sustained by inventory and cataloguing processes [18] supported by inspection and diagnosis actions performed at the local level, i.e. directed to the particularities of the local architectural heritage [19,20]. Finally, it is important to refer that Italy is a seismic country and that numerous studies have been developed to minimize its hazard, particularly in historic centres [10,15,20] and in areas of high seismic risk, a fact that has enriched knowledge and technical codes with new measures concerning built heritage interventions.

3.1.2. Spanish context

Beforehand, it is important to highlight that Spain's concern on cultural built heritage is mostly focused on historic heritage (monuments, sites and ensembles) [21]. The codes regarding the protection of these assets exist at both national and regional level. At national level, there is *Ley del Patrimonio Histórico Español* [21] and at regional level, each region has its own law, e.g. *Ley do Patrimonio Histórico de la Comunidad de Madrid* [22]. At national level, there is a unique technical building code, *Código Técnico de la Edificación* (CTE) [23] that establishes the basic requirements of quality of buildings and facilities. Governmental institutions have been working together to adapt the CTE to the particularities of existing buildings, as this code was first established to deal with new constructions. Currently, this code already recognizes requirements based on proportionality and flexibility criteria that guarantee levels of demand adjusted to the particular conditions of existing built heritage that should not be worsen [5]. According to some authors, this is in line with the requirements adopted in the European Union [4], being reflected in the new national law *Ley de Rehabilitación, regeneración y renovación urbanas* [24].

At the regional level, each autonomous community has standards concerning conservation, rehabilitation and the definition of the state of collapse of built heritage, combined with procedures for the protection of historic heritage [8] (e.g. Community of Madrid [25–27]). The absence of criteria defined at national level allows each community, with pros and cons, to have their own regulations for buildings (e.g. Community Catalonia [28]). Although based on the national regulation, the lack of tools and uniform criteria at national level allows each region to establish their own procedures to inventory and catalogue cultural built heritage and to define different minimum housing conditions, in agreement to the characteristics of its built heritage and environmental conditions, to be applied at the municipality level [8,29] (Fig. 2).

3.1.3. Portuguese context

In Portugal, the codes and standards are organized in two levels: national and municipal. At the national level, there is legislation

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