

MARIA DO ROSÁRIO VEIGA*

National Laboratory for Civil Engineering (LNEC)
Lisbon, Portugal
rveiga@lnec.pt

MARTHA TAVARES

National Laboratory for Civil Engineering (LNEC)
Lisbon, Portugal

MARLUCI MENEZES

National Laboratory for Civil Engineering (LNEC)
Lisbon, Portugal

*Author for correspondence

STRATEGIES FOR CONSERVATION OF HISTORICAL RENDERINGS. FACTORS AND DECISION CRITERIA

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ABSTRACT

The conservation of historical renderings is not a common practice nowadays, since there are many cases of indiscriminate removal and repair with incompatible materials that undermine technical and material history of these building elements. Due to their historical, technical (construction and materials) and aesthetic importance, such renderings present knowledge and technology that should be preserved as cultural heritage. In this sense, the technical intervention adopted must be chosen by taking into account the analysis of collected data about the building, and in particular, about the rendering, stressing the importance of an interdisciplinary approach. In the scope of the consolidation of this interdisciplinary perspective, it is proposed, from an ongoing study, the construction of a set of matrices where a methodology of intervention could be defined based on several concepts and decision criteria.

RÉSUMÉ

La conservation des enduits historiques n'est pas une pratique courante de nos jours, puisque, bien souvent, un retrait inconsidéré et des réparations avec des matériaux incompatibles compromettent l'histoire technique et matérielle de ces éléments de construction. En raison de leur importance historique, technique (construction et matériaux) et esthétique, ces enduits représentent des connaissances et une technologie qui doivent être préservés à titre de patrimoine culturel. En ce sens, l'intervention technique adoptée doit être choisie en tenant compte de l'analyse des données collectées sur le bâtiment, et en particulier, sur l'enduit, en rappelant l'importance d'une approche interdisciplinaire. Afin

INTRODUCTION

The rendering is the outer element of a building and has a significant role in protecting it from external actions and in defining the urban streetscape. The different layers of mortar and paint and the decorative features are part of an old building's technical and material authenticity and they are clues to the history of architectural heritage (Figure 1). Few documents proposing a methodology for the treatment of rendered surfaces exist, as they are currently considered sacrificial coatings and as such are not valued highly.



Figure 1
Renderings: before and after restoration

The preservation of renderings of this sort is intrinsically connected to their authenticity, which, among other things, is based on a set of values (constructive, technical, aesthetic, architectural and social, etc.) that over time is conveyed to a heritage object (Figure 2). This set of values can be considered to constitute a manifold global cultural value. Therefore, in the process of understanding the authenticity of the multi-dimensional value of a heritage property, it is first important to assess the credibility of the information transmitted to us. Then, it is essential to understand these sources of information from original and later characteristics, as well as their meanings (The Nara Document on Authenticity 1994).

de renforcer cette approche interdisciplinaire, il est proposé, à partir d'une étude en cours, de construire un ensemble de modèles où une méthodologie d'intervention pourrait être définie en fonction de plusieurs concepts et critères de décision.

RESUMEN

La conservación de aplanados históricos no es una práctica común hoy en día, ya que en muchos casos se eliminan de manera indiscriminada y se reparan con materiales incompatibles que socavan la historia de las técnicas y de los materiales de estos elementos constructivos. Debido a su importancia histórica, técnica (construcción y materiales) y estética, dichos aplanados contienen conocimientos y tecnología que deberían ser conservados como patrimonio cultural. En este sentido, la intervención técnica adoptada debe ser seleccionada teniendo en cuenta el análisis de los datos recopilados sobre el edificio y, en particular, sobre los aplanados, subrayando la importancia de un enfoque interdisciplinario. Con el fin de consolidar esta perspectiva interdisciplinaria, se propone la construcción, a partir de un estudio continuado y basándose en varios conceptos y criterios de decisión, de una serie de matrices en las que se pueda definir una metodología de intervención.



Figure 2
Technical craft knowledge

These requirements are important guidance for the development of an intervention process based on critical reflection (Henning 2006, Jaenen 2008), particularly when it relates to issues of architectural heritage conservation. The problems are more complex due to the dynamics of societies allowing a broader approach to the discussion about conservation. For example, in accordance with the Charter of Krakow (2000), we should also consider the socio-cultural meanings in addition to other values, in order to maintain and preserve a place and its urban image, including its exterior rendering (Figure 3). However, this approach invokes the emergence of an interdisciplinary and multi-disciplinary practice of analysis, evaluation, approach and intervention (Menezes and Tavares 2003).

FACTORS FOR THE DEFINITION OF A RENDER CONSERVATION METHODOLOGY

Due to their exposure to climatic, environmental and human actions, render suffers continuous degradation. The lack of knowledge concerning techniques and materials and of previous examples of restoration leads to their removal and substitution with consequent loss of appearance and testimony. For the preservation of the authenticity of historical surfaces, it is important to define criteria for the selection of a conservation strategy.

Several factors should be analyzed to select an intervention methodology. A major issue is the cultural value of the render, as well as the value of the building itself. However, other factors must be considered, such as the state of conservation of the render and of the background.

The cultural value of the rendering should be evaluated according to concepts related to its history, symbolism, rarity, technical complexity and aesthetic value. These concepts are to a degree subjective, varying according to the community and cultural references, so they must be defined from an inter-disciplinary perspective within each region. In this study, an enquiry is proposed to consult all the representative views on a building (architects, engineers, conservators, historians, general users...). To define the value of the render, it is also necessary to have a deep knowledge of the materials and techniques used and their historical development.

The influence of a building's cultural value (monument, classified building or common building) on the render should also be analyzed.

The condition of the render – the type of anomalies and their intensity – is critical to the establishment of the intervention methodology. It is necessary to select the appropriate methods of analysis to identify the type of anomaly present and to quantify the degree of deterioration, as well as to study the possibilities for treatment.

If a restoration process is to be carried out, the aim is to re-establish the physical and aesthetic equilibrium of the whole, restoring homogeneity and the characteristics required by the original and present functions. Distinct kinds of interventions, with different degrees of complexity, may be carried out, such as: cleaning, biocide treatment, localized repairs of cracks and



Figure 3
Urban image: social, cultural and
architectural heritage

lacunae, consolidation and aesthetic reintegration, etc. Consolidation treatments are probably the most delicate and complex, but they are needed if there is a decision to conserve a render suffering loss of cohesion or loss of adhesion. In this case, the repair materials and techniques used must be carefully chosen following compatibility criteria and the intervention must be performed by specialized conservator-restorers (ICOM 1984), with the involvement from specialists in other areas. Technical, pedagogic and aesthetic criteria should be fulfilled in order to avoid both falsifications and further degradation processes due to incompatibility.

Render is applied to a background, usually a masonry wall, a timber frame, or, in more recent constructions, a concrete structure. The deterioration of the substrate may affect the conservation of the render, especially if the anomalies are related with structural safety. It is necessary to treat the substrate and this situation usually requires the detachment of at least some pieces of the render. The techniques for substrate treatment must be selected in order to guarantee efficacy while being as non-invasive as possible.

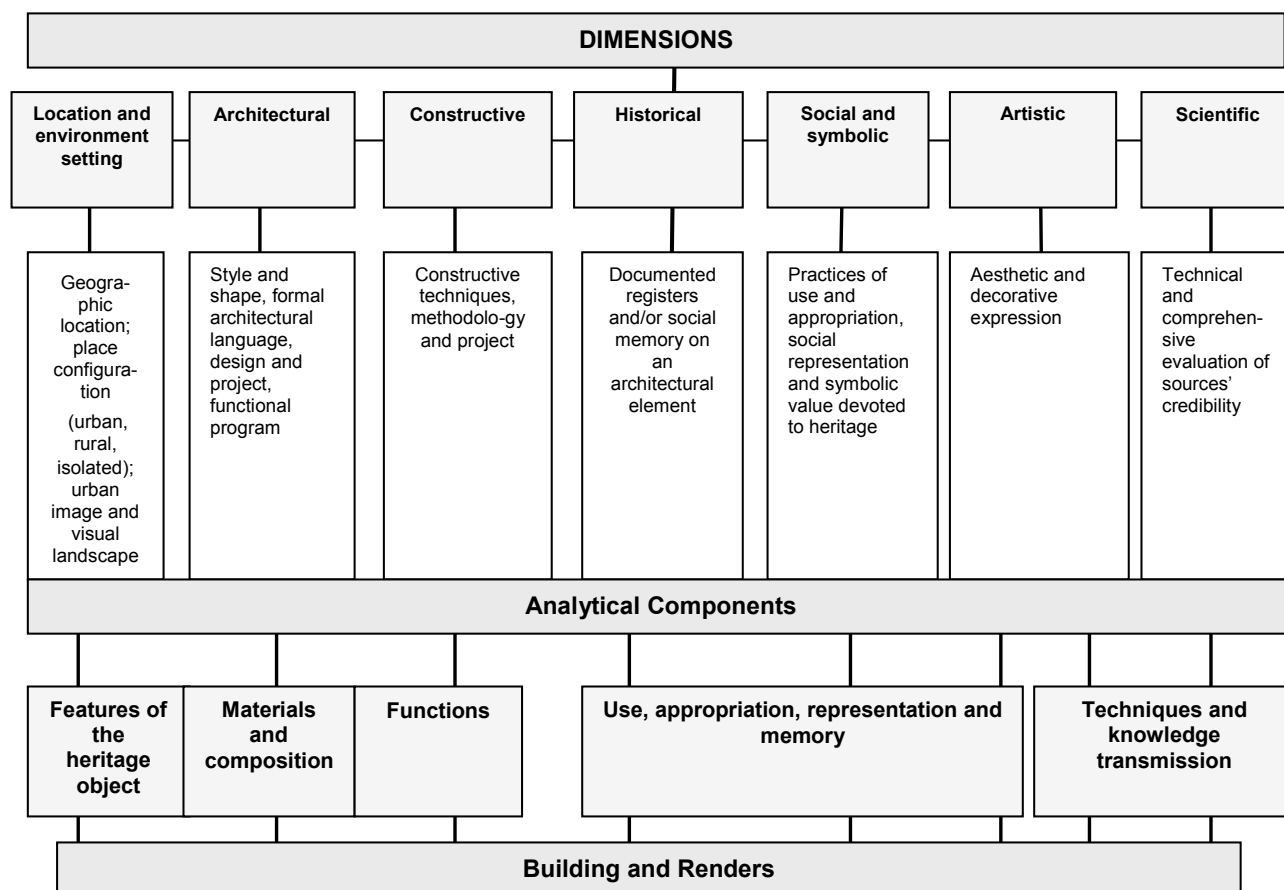
It is important to establish an integrated and participated platform of discussion, which implies an inter-disciplinary approach and an interactive perspective. In this sense, it is necessary to discuss some aspects that may contribute to the construction of such a platform by articulating concerns deriving from distinct and specific techniques but by sharing interests in conservation and social development. Issues concerning architectural restoration or the conservation of historical render and mortar should also be related to those concerning the social and cultural dynamics of contexts (Menezes and Tavares 2008). The elaboration and consolidation of a matrix of analysis can be an important contribution, not only by providing methodological guidance for the intervention process, but also by effectively operationalizing this inter-disciplinary platform of approach and discussion. However, this is regarded as an auxiliary tool that does not produce answers for any particular area of decision-making.

CONSTRUCTION OF A MATRIX OF CONCEPTS, STRATEGIES AND INTERVENTION CRITERIA

In implementing an intervention methodology, the main purpose of multi-dimensional matrix definition, approach and analysis is to provide a basis for the conservation of an exterior lime-based rendering. Drawing on past experience, a review of related literature and analysis of collected data (Leblanc 2001, Veiga and Aguiar 2003, Van Balen 2007, Menezes and Tavares 2008, Jaenen 2008, Onaka 2008, Van Balen 2008, Tavares 2009 and Veiga 2010a, 2010b), the following questions were used to guide the initial process of defining the basis for an analysis and approach matrix:

- What type of information must be collected about the building and its rendering?
- How to classify multidimensional values?
- What strategies of intervention must be selected?

Based on these questions, a process of conceptual systematization has been started that has guided, grounded and provided the basis for testing a matrix for the approach, analysis and definition of conservation/intervention strategies for exterior renders, as exemplified below (Matrix 1).



Matrix 1

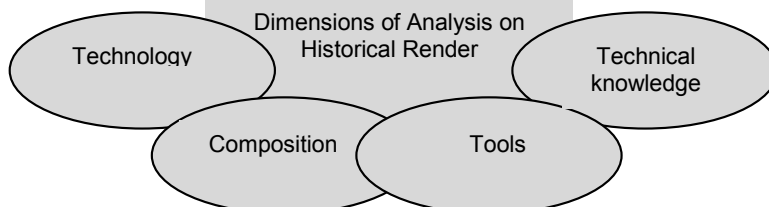
Aspects in the overall characterization of render for the definition of its cultural value (adapted from Van Balen 2007, 2008)

The cultural value should mainly determine the strategy of intervention, namely the options for sound conservation and non-intrusive techniques. For example, removal and substitution of elements of the rendering should only be considered for cases of low cultural value and for buildings of medium/low cultural value.

How to classify cultural value, bearing in mind that it is a multi-dimensional concept as described in Matrix 2? Any classification has to weigh all sides of the issue. This evolution from a matrix of dimensions to a practical classification able to support decisions needs the contribution of a large panel of people representing those who think about, use and see historical buildings: historians, conservators, architects, physicists, chemists, sociologists, builders and inhabitants of sites and towns... A survey is currently being prepared to implement this consultation (Matrix 2).

The state of conservation is another dimension to take into account. It is also a complex issue, as represented in Matrix 3. A multi-dimensional description

Architectural impact of the building in its surroundings (general elements)						
Architectural value	Historical value	Rarity value	Artistic value	Scientific value	Technical value	Socio-symbolic value
Architectural impact of the renders in the building (general elements)						
Architectural value	Historical value	Rarity value	Artistic value	Scientific value	Technical value	Socio-symbolic value



Matrix 2

Aspects of the analysis of the cultural value of buildings and render

is a tool to avoid simplification that could lead to common errors, such as classifying highly-deteriorated rendering as rendering which is simply aesthetically damaged by dirt or affected by small cracks but still retains good cohesion and adhesion to the substrate. The “repairability” of the defects using current methods is a factor to consider, because it means the feasibility of undertaking repairs (Matrix 3) (Veiga and Aguiar 2003).

Matrix 3

Aspects of the analysis of the state of conservation

State of conservation of the building (general elements)		State of conservation of the substrate			State of conservation of the rendering	
Type of degradation	Safety	Type of substrate	Type of degradation	Safety	Type of anomaly (repairability)	Grade of deterioration

The availability of specialized workmanship is also to be considered. Depending on the characteristics of the building and of the rendering itself, and also of the kind of defect to be repaired, the degree of specialization may differ. However, it is not possible to undertake conservation of technically complex finishings, such as simulated marble or graffiti, without recourse to skilled and specialized workmanship (conservators, restorers) (ICOM 1984). On the other hand, the technical difficulty of the repair of some kinds of anomaly, such as the loss of cohesion or adhesion, also demands another kind of specialization: the training and knowledge of conservators and restorers. Matrix 4 systematizes the workmanship needs (Matrix 4).

Matrix 4

Technical needs of workmanship for the implementation of a conservation process on historical renders

Skilled workmanship	
Rendering execution	Rendering restoration
Artisans	Conservators/Restorers
Viability of the intervention (skilled workmanship, materials and execution viability)	
Rendering execution	Rendering restoration
Knowledge of lime techniques and decorative finishings	Knowledge of restoration techniques and of the compatibility, technical, pedagogic and aesthetic criteria

Considering the aspects described above, a final synthetic matrix could be constructed to directly support the intervention strategy (Matrix 5).

Matrix 5 is a simplified general tool that must be worked out in its several aspects. Again, the definition and adequate classification of cultural value is a major issue that needs to be established, based on a broad discussion among all stakeholders. The concepts of ‘high’, ‘medium’ and ‘low’ cultural value, or possibly a more elaborate scale of value, must be established on a scientific basis.

Matrix 5

Principles for the definition of a general strategy for intervention on a historical render

Cultural Value	State of conservation of the substrate	State of conservation of the render/ plaster	Compatibility with use and actions	Recommended strategy
High	Good	Good	Bad	Protect the render in a non-invasive way
	Good	Bad	Good	Repair and consolidation of the render
	Bad	Good	Good	Repair of the substrate with techniques of low intrusivity; Keep the render fulfilling lacunae and and reintegrating aesthetically
	Bad	Bad	Good	Repair of the substrate with techniques of low intrusivity; Repair and consolidation of the render
	Bad	Good	Bad	Repair of the substrate with techniques of low intrusivity; Protect the render in a non invasive way
	Good	Bad	Bad	Repair and consolidate the render. Protect the render.
	Bad	Bad	Bad	Repair the substrate with techniques of low intrusivity; Repair and consolidate the render. Protect the render.
Cultural Value	State of conservation of the substrate	State of conservation of the render/ plaster	Compatibility with use and actions	Recommended strategy
Medium	Good	Good	Bad	Protect or reinforce the render in a compatible way (ex. silicate based painting)
	Good	Bad	Good	Repair and consolidation of the render
	Bad	Good	Good	Repair of the substrate with techniques of low intrusivity; Keep the render fulfilling lacunae and and reintegrating aesthetically
	Bad	Bad	Good	Repair of the substrate with techniques of low intrusivity; Partial substitution of render/plaster
	Bad	Good	Bad	Repair of the substrate with techniques of low intrusivity; Reinforce the render in a compatible way
	Good	Bad	Bad	Analyze the viability of repair and consolidation of the render against partial substitution with compatible techniques and materials.
	Bad	Bad	Bad	Repair of the substrate and substitution of the render with compatible materials
	Good	Good	Bad	Protect or reinforce the render in a compatible way (ex. silicate based painting)

While an integrated tool is not operational, some simplified rules can be prepared based on the present scientific knowledge and on the practical approach of some cases (Tavares 2009, Veiga et al. 2009, Silva et al. 2010 and Tavares et al. 2010).

CONCLUSION

The evaluation of all the factors involved – the cultural value of the render and of the building as a whole; the state of conservation of the render and types of anomalies; the state of conservation of the substrate; and any other possible factors – will be globally analysed, interconnecting technical methodologies and subjective appreciation.

To address the cultural value of render and to establish levels, a range of stakeholders representing different views of the building will be consulted by means of a survey that is currently under preparation.

Based on this analysis, a matrix will be constructed as a tool for supporting decision-making. However, this is regarded as an auxiliary tool and does not lead to single answers for an area of project decision-making.

The development of this methodology intends to contribute to increased rigour in the conservation and restoration practices for external render, aiming at maximizing the preservation of these architectural surfaces and avoiding unnecessary removal.

In this sense, it is intended to contribute to the preservation of the urban image and to the history of architecture by identifying materials and techniques used for rendering. As a cultural and social facet it should be preserved for future generations.

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